

Ministry of Agriculture  
and Fisheries

# AG DATA Agricultural Glossary

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Merry Christmas To Alan. 1985  
from: Mum and Dad.

# Agricultural Glossary

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# Introduction

The aim of this booklet is to define some of the technical terms used in New Zealand farming. Some of these are common in Europe and North America and some are specific to Australasia.

Confusion often arises with non-English speaking visitors to New Zealand who need a definition of terms before translation into another language — often by interpreters with a non-technical background.

There are also many non-technical people in New Zealand associated with agriculture who find farming terms often confusing and at times even embarrassing.

This glossary is a start but it needs support from readers. I hope that the frustration generated by not finding the answer to your question in the book will encourage you to write to me so that it can be included in future.

Dr D.C. Dalton,  
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## General

**Artificial insemination (AI):** Where semen is placed inside the reproductive tract by artificial means. This semen has been previously collected and usually stored (frozen) before being used. In Australasia it is called artificial breeding (AB).

**Bale:** A package of material, e.g. hay bale, wool bale, peat bale. To bale up is to make into a bale.

**Bail:** A frame for holding an animal, e.g. milking bail, head bail.

**Bail-up:** To capture, corner or restrain an animal, e.g. to bail up a wild pig.

**Beefplan:** The National Beef Recording Scheme in New Zealand.

**Bloodstock:** Purebred (thoroughbred) horses.

**Book:** Herdbook, Studbook — the register of a breed society or association.

**Branding:** Giving an animal an identification mark or number (fire branding, freeze branding, chemical branding).

**Bush:** The native rain forest of New Zealand.

**Close-to-profit:** Stock (usually dairy) that are approaching the productive stage of their lives, e.g. cows close to calving.

**Condition:** A term used to describe the physical state of an animal, its level of finish, muscle development, and fatness. Condition scoring is done using a scale from emaciated to grossly fat.

**Creek:** A small stream or waterway.

**Crush:** A small pen in which animals can be held tightly or a portion at the end of a race to restrain animals.

**Dipping:** Immersion or spraying of animals (usually cattle and sheep) to kill external parasites (ectoparasites).

**Doing:** To describe how stock are growing or their state of health, e.g. doing well or badly. "Not doing" = performing badly.

**Dosing:** (Same as drenching).

**Drenching:** Administering a liquid (usually a drug) down the throat of an animal, e.g. to kill parasites (endoparasites), to prevent bloat (excess gas production in a ruminant), to give minerals, etc.

**Docking:** Removing a large part of a young animal's tail to stop faeces (dung) sticking to it. The short part of the tail remaining is called a "dock". Docking is done by knife, hot iron, or rubber rings and is usually done at the same time as castration in sheep.

**Draft off or drafting:** Removing certain animals from a group. This can be done by driving the animals out of a group (cut off or drift off) or driving them up a race and removing them through a special gate (drafting gate).

**Ear-marking:** Removing "bits" from an animal's ear to denote age or ownership.

**Farm (general):**

- **Block:** an area of land, e.g.:
  - Development block — an area being developed from bush or scrub to farmland.
  - Settlement block — an area made (settled) into farms.
- **Paddock:** a confined area of any size (field).
- **Run:** an extensive grazing property usually in South Island tussock country.
- **Run-off:** an area of land, perhaps separated from the main area where young stock or dry (non-lactating) animals are run.
- **Station:** a large farm, usually under extensive farming of sheep and beef.

**Feedlot:** Confined area where feed is brought to animals.

**Flat:** An area of level ground, usually near a river.

**Freezing works:** A factory where livestock are slaughtered and their carcasses frozen.

**Groups of animals:**

- **Mob:**

Sheep	
Cattle	Usually smaller group within
Goats	a flock or herd.
Horses	

**Gully:** A small valley.

**High Country:** High mountainous country. In New Zealand usually in the South Island where tussock grows.

**Hill country:** Steep to rolling country, usually with only a small proportion accessible by wheeled tractor. In New Zealand usually it had previously been covered in bush.

**Lick:** A lick is a block of material containing minerals or dietary supplement that is placed in the paddock for the animals to lick. It may be in the form of a drum with a rotating ball that the animals lick.

**Mixed sex:** Group of animals made up of both males and females. The proportion is roughly about half-and-half but can vary considerably.

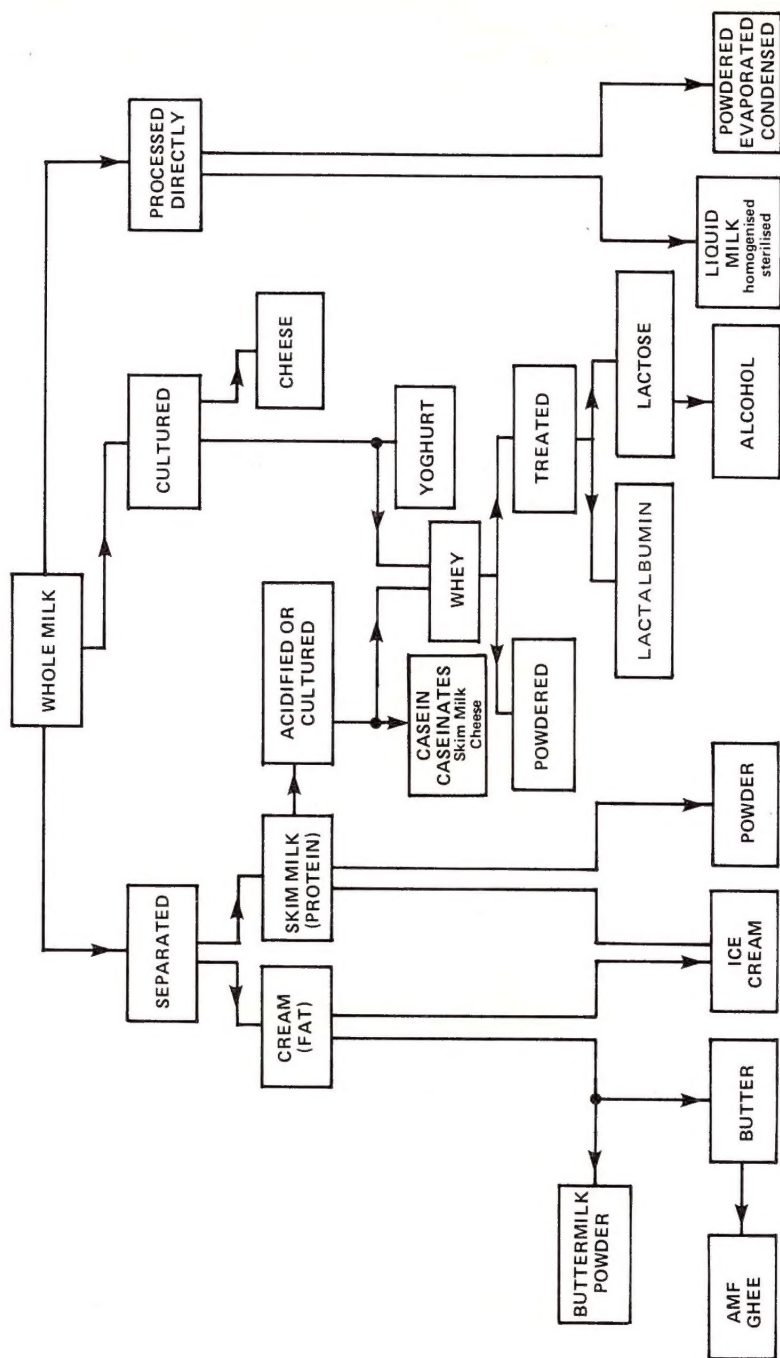
**Muster:** Gather or collect animals together. A clean muster leaves none behind (stragglers). A straggle muster is to collect the stragglers.

**Polled (polledness):** Having no horns.

**Prices:** These are often quoted as f.o.b., f.o.r., or c.i.f.:

**f.o.b.:** free on board. This is a price for the product delivered by the seller and loaded on the ship or aeroplane at his expense.

**f.o.r.:** free on rail. This is as for f.o.b. but delivered and loaded on to rail transport.



Composition of milk and uses.



**c.i.f.:** costs, insurance, and freight. A price quoted whereby the producer has paid for the costs of insurance and freight.

**Race:**

- A narrow channel along which irrigation water flows.
- A narrow pen along which animals walk in single file or can be held tightly.
- A fenced roadway through a farm.

**Rising:** Used to describe an animal "about to become" a certain age, e.g., a rising 2-year-old is an animal approaching 2 years old.

**Ruminant:** An animal with a four-part stomach (rumen, reticulum, omasum, abomasum). The largest part is the rumen from which grass is regurgitated (cud) for further chewing. Chewing the cud. Cattle, sheep, goats, deer are ruminants. Pigs and poultry are simple-stomached (monogastric) animals.

**Run-with-ram or bull:** Females that have been joined or given the chance to mate but there is no guarantee of how many are pregnant.

**Seasons:**

Spring	— mid August–November	(South Island seasons are
Summer	— December–February	later than North Island)
Autumn	— March–mid May	
Winter	— mid May–mid August	

Lambing and calving are in Spring (August–September).

**Shed:** A building, e.g., woolshed or dairy shed. Also the act of drafting off animals from a group — shedding.

**Sheeplan:** The National Sheep recording Scheme in New Zealand.

**Scrub:** Manuka, low trees, fern, weeds, etc., covering land.

**Smoko:** Morning or afternoon tea break.

**Stocking:**

- *Set stock:* To leave herd or flock to graze uninterrupted in one paddock for a long period or in several paddocks with gates open.
- *Mob stock:* To move herd or flock from paddock to paddock at short intervals (also called "intensive grazing" or "rotational grazing").

**Stocking rate (SR):** The number of animals carried or run on a defined area of land. May be called carrying capacity. Expressed in stock units (see definition).

**Stock unit (SU) or livestock unit (LSU):** Also referred to as ewe equivalent (EE). It is the feed requirement used as the basis of comparison for different classes and species of stock. It expresses the annual feed requirements, equivalent to one 55 kg ewe rearing a single lamb. 1 LSU requires approximately 520 kg of good quality pasture dry matter per year. For example, 1 hogget = 0.7 LSU; 1 Jersey cow = 6.5 LSU; 1 mature Red Deer stag = 1.5–2.0 LSU (see Facts and Figures for Farmers — MAF).

**Store animals:** Kept for breeding or fattening — not fat stock. Forward stores are those in good condition and nearly finished (fat).

**Tare:** Allowance made to the buyer to compensate for the weight of the container. Weight of vehicle less weight of fuel and load.

# Common farming abbreviations

<b>AA</b>	Aberdeen Angus
<b>AB</b>	Artificial Breeding
<b>ac</b>	acre
<b>A &amp; P</b>	Agricultural and Pastoral
<b>ai</b>	active ingredient
<b>ASP</b>	autumn saved pasture
<b>AWASP</b>	adjusted weighted average sale price (for wool)
<b>B</b>	boron
<b>BF</b>	butterfat
<b>BMC</b>	bulk milk cell count
<b>BMP</b>	butter milk powder
<b>BYDV</b>	barley yellow dwarf virus
<b>bf</b>	black face
<b>C</b>	carbon
<b>°C</b>	degrees celcius
<b>Ca</b>	calcium
<b>cfa</b>	cast for age
<b>cif</b>	cost, insurance, freight
<b>Cl</b>	chlorine
<b>CO</b>	consulting officer
<b>Co</b>	Cobalt
<b>CP</b>	calving percentage
<b>CRD</b>	crop research division (DSIR)
<b>CTP</b>	close to profit
<b>Cu</b>	copper
<b>Cusec</b>	cubic foot per second
<b>DAO</b>	dairy advisory officer (MAF)
<b>DAP</b>	diammonium phosphate
<b>DBCO</b>	Dairy Board consulting officer
<b>DCE</b>	dairy cow equivalent
<b>DLWG</b>	daily liveweight gain
<b>DM</b>	dry matter
<b>DDM</b>	digestible dry matter
<b>DOM</b>	digestible organic matter
<b>DOP</b>	dressing out percentage
<b>DRI</b>	Dairy Research Institute
<b>DSIR</b>	Department of Scientific and Industrial Research
<b>EC</b>	emulsifiable concentrate
<b>EE</b>	ewe equivalent (see LSU)
<b>EFS</b>	economic farm surplus
<b>FAO</b>	farm advisory officer (MAF)
<b>FAO</b>	Food and Agricultural Organisation
<b>FCE</b>	food conversion efficiency
<b>FCM</b>	fat corrected milk (4%)
<b>FDI</b>	farm dairy instructor (MAF)

°F	Fahrenheit degrees
Fe	iron
F & F	fat and forward
FF	Federated Farmers
FH	freehold
FIC	farm improvement club
fl	fluid
FO	field officer (MAF)
fob	free on board
for	free on rail
FR (Frs)	Friesian(s)
FW	fresh weight
g	gram
gf	green feed
gi	generation interval
GI	gross income
GM	gross margin
GW	green weight
ha	hectare
HAO	horticultural advisory officer (MAF)
hb (HB)	herringbone
HD	high density
Hfd	Hereford
HFMR	high fat milk replacer
Hfr	heifer
Hgt	hogget
hp	horsepower
HT	high tensile
hz	hertz
I	iodine
IC	in calf
IRD	Inland Revenue Department
J	Jersey
J	joule
K	potassium (potash)
kg	kilogram
kJ	kilojoule
km	kilometre
kPa	kilopascal
kW	kilowatt
kWh	kilowatt hour
Ld	low density
LDE	land development encouragement loan
LH	leasehold
LIA	livestock improvement association
LIP	lease in perpetuity
LIS	livestock incentive scheme
LO	livestock officer (MAF)
LP	lambling percentage
LSU	livestock unit
LW	live weight
LWG	live-weight gain

<b>m</b>	metre
<b>MA</b>	mixed age
<b>MAF</b>	Ministry of Agriculture and Fisheries
<b>mb</b>	millibar
<b>MC</b>	moisture content
<b>ME</b>	metabolisable energy
<b>MF</b>	milkfat
<b>Mg</b>	magnesium
<b>m</b>	metres
<b>MJ</b>	megajoule
<b>MJME</b>	megajoules metabolisable energy
<b>MLB</b>	Marginal Lands Board
<b>ml</b>	millilitre
<b>mm</b>	millimetre
<b>MMT</b>	milking machine test (report)
<b>Mo</b>	molybdenum
<b>MS</b>	mixed sex
<b>N</b>	nitrogen
<b>Na</b>	sodium
<b>NPK</b>	nitrogen, phosphorus, potassium ratio
<b>NZDB</b>	New Zealand Dairy Board
<b>O</b>	oxygen
<b>OM</b>	organic matter
<b>P</b>	phosphorous
<b>Pa</b>	pascal
<b>PA</b>	polled Angus
<b>PCN</b>	potato cyst nematode
<b>pH</b>	measure of acidity (7.0 = neutral)
<b>PTO</b>	power take off
<b>R1 (2, 3)</b>	Rising 1 (2, 3) year old
<b>RBFC</b>	Rural Banking and Finance Corporation
<b>RH</b>	Relative humidity
<b>RHS</b>	rectangular hollow section
<b>RM</b>	relative maturity
<b>Rom</b>	Romney
<b>RSJ</b>	rolled steel joist
<b>RWB</b>	run with bull
<b>RWR</b>	run with ram
<b>S</b>	sulphur
<b>SBO</b>	sheep and beef officer (MAF)
<b>SCC</b>	somatic cell count
<b>SD</b>	Southdown
<b>SD</b>	selection differential
<b>SD</b>	standard deviation
<b>SE</b>	standard error
<b>SE</b>	starch equivalent
<b>SH</b>	Shorthorn
<b>Shn</b>	shorn
<b>SMP</b>	skim milk powder
<b>SNF</b>	solids not fat
<b>SS</b>	stainless steel
<b>Std</b>	standard



<b>Str</b>	steer
<b>SU</b>	stock units (see LSU)
<b>TB</b>	tuberculosis
<b>TCB</b>	Trades Certification Board
<b>TCI</b>	Technical Correspondence Institute
<b>2, 4, 6th</b>	2, 4, 6 tooth
<b>Vol.</b>	volume
<b>4 (2) WD</b>	4 (2) wheel drive
<b>Weth</b>	wether
<b>WF</b>	whitefaced
<b>Wt</b>	weight
<b>WP</b>	wettable powder
<b>WRO</b>	Wool Research Organisation
<b>WSP</b>	winter saved pasture
<b>Wth</b>	wether
<b>W/V</b>	weight for volume
<b>W/W</b>	weight for weight
<b>YFC</b>	young farmers' club
<b>Yrl</b>	yearling
<b>YS</b>	young stock
<b>Zn</b>	zinc

# Reproduction



**Abortion:** Premature expulsion of the foetus from the uterus, usually caused by disease or injury.

**Barren:** Failed to reproduce or incapable of reproduction.

**Bulling:** See oestrus.

**Amniotic fluid:** The fluid around the foetus.

**Castration:** Removal of a male's testicles. This is done by knife, knife and hot iron, rubber rings, or special pliers that sever the chord without cutting the skin.

**Cervix:** The opening into the uterus or womb.

**Colostrum:** The first milk produced by the dam after birth.

**Cycling:** See oestrus.

**Chin-ball:** A device fitted to the chin of a bull to mark with ink cows that he mounts.

**Dry:** An animal that has not reproduced. In New Zealand the following terms are used:

- *Wet/Dry:* had a lamb or calf because it has an udder from which milk can be expressed (hence wet) but has not reared it.
- *Dry/Dry:* not produced an offspring at all or is barren.

**Dystocia:** Difficulty in the process of giving birth; the offspring is too large, or the dam's pelvis too small, or both.

**Embryo:** The early stage of development of a mammal (in the uterus), or bird (in the shell).

**Entire:** A male (not castrated).

**Fecundity:** A measure of the number of offspring born and reared by the dam.

**Fertility:** A measure of the ability of the female to conceive and produce offspring, or of the male to fertilise the female.

**Foetus:** The unborn animal in its mother's uterus.

**Fostering:** Making a dam accept an offspring other than its own, or giving an offspring to another dam (fostering on).

**Heat:** Period when a female will stand to be mounted by other females or males. It is the time when she will accept mating. Also called oestrus or bulling in cattle.

**Hermaphrodite:** Bisexual animal — one that has both male and female organs.

**Hormone:** Secretion from special glands within the animal's body which affects various body functions.

**Joining:** Term used to describe putting males and females together.

**Mating:** The act of mating between males and females. Animals may be joined but not mated.

**Mothering:** Same as fostering.

**Mounting:** To get up on to a horse. The term is also used to describe one animal jumping up or riding another which is an indication of heat. The animal on heat is usually the one standing, allowing another female or male to mount or ride it.

**Nymphomaniac:** Female animal in continuous oestrus. In cattle called a buller.

**On-the-drop:** Animal about to give birth.

**Oestrus:** Period when animal will stand to be mated (see heat).

**Ovary:** The female organ that produces ova (eggs).

**Ovum transfer or OT:** Where an egg (ovum) which has been fertilised inside a dam (its donor) is then extracted from that animal and transferred to another dam (a recipient) where it grows to full term and is born. The recipient may suckle and rear the implanted offspring. Also called ET (embryo transfer).

**Placenta:** The organ inside the uterus by which the dam's blood supply reaches the offspring (foetus) through the umbilicus (cord). It is expelled at birth and called the afterbirth or cleaning.

**Puberty:** The stage in an animal's life when it reaches sexual maturity.

**Rig:** Male with only one descended testicle; cryptorchid. It may or may not be fertile.

**Season:** In season is synonymous with in oestrus and heat.

**Semen:** The male sperm and fluids produced in the testicles and other glands of the male's reproductive tract.

- *Fresh or liquid* — as collected from the male.
- *Frozen (deep frozen)* — usually diluted semen which is stored at  $-196^{\circ}\text{C}$ .
- *Thawed* — brought back to ambient temperature from  $-196^{\circ}\text{C}$ .
- *Re-constituted* — fresh semen which after deep freezing and thawing is diluted for use.

**Springing:** An animal starting to show udder development.

**Teaser:** Male that cannot get a female pregnant. An entire male is made into a teaser by:

- Vasectomising an entire—Ligaturing or cutting the tube that carries sperm from the testicles to the penis.
- Penis deviation—An operation to make it impossible for the male to enter the female when he mounts.
- Treating a female with male hormone to sexually activate her and make her act like a male.
- Tie an apron on an entire male which prevents his penis entering the female when he mounts.

**Uterus:** The female organ in which the foetus develops during pregnancy.

# Reproduction

	Cattle	Sheep	Goat	Horse	Pig	Dog	Deer	Rabbit	Poultry
Season of Breeding	All Year	Autumn (February–May)	Autumn <sup>1</sup> (February–May)	Spring (September–February)	All Year	All Year	Autumn (March–May)	All Year	All Year
Length of Oestrus (range)	14 hrs (10–30 hrs)	24 hrs (4–72 hrs)	48 hrs (2–3 days)	7 days (2–11 days)	24 hrs (12–60 hrs)	7 days (5–15 days)	18 days	—	—
Length of Cycle (range)	21 days (18–24)	17 days (14–21)	21 days (19–22)	23 days (21–28)	21 days (19–22)	6 months	18 days (14–22)	—	—
Pregnancy	282 days	140–150 days	150–156 days	340 days (325–347)	115 days (3 mths, 3 wks, 3 days)	62 days (58–63)	226–233 days Wapiti 255	31 days turkey goose	Incubation period of chicken 21 days duck 28 days turkey 28 days goose 33–35 days
Puberty age	6–10 months	7–8 months	7–9 months	1–2 years	4–5 months	6–9 months	14–18 months <sup>2</sup>	5 months	5 months

<sup>1</sup>Milking and feral goats may breed at other times of the year.

<sup>2</sup>Puberty varies with species of farmed deer.





**Allele:** Any one of the alternative forms of a gene.

**Blood lines:** A general term used to describe relationships or ancestry.

**Breeding value:** An assessment of the future genetic potential of an animal.

**Chromosome:** The thread-like structure in the cell nucleus that carries the genes.

**Crossbred:** The result of crossing two breeds, lines or strains.

- *F1*: The first filial (daughter) generation or first cross.
- *F2, F3, etc.*: Subsequent filial generations or crosses after the *F1* or first cross.
- *2-way cross*: Crossbred made up from crossing two basic breeds.
- *3-way cross*: Crossbred from crossing three basic breeds.
- *Criss-cross*: Crossbred produced after a period of using each of the two parent breeds alternately.
- *Back-cross*: A cross between a crossbred and either of its parent breeds.
- *Rotational cross*: Crossbred produced after a period of crossing with a series of breeds used in a set rotation.

**Culling:** Removal of poor animals from a population.

**Dominant:** The condition where one allele (dominant) masks the effect of the other (recessive) allele.

**Dual-purpose:** Breeds that provide meat and milk (cattle) or lambs and wool (sheep). Sheep may be triple-purpose (milk, meat, and wool).

**Generation interval:** The average age of the parents when the offspring are born.

**Genes:** The basic units of inheritance.

**Genotype:** The genetic make-up of the animal.

**Halfbred:** A cross between two breeds, usually an *F1*.

**Heritability:** The strength of inheritance of the trait.

**Heterosis:** The condition that occurs when animals of different genetic constitution are crossed.

**Heterozygote:** An organism that received unlike alleles for a specific gene from its parents.

**Homozygote:** An organism that received like alleles for a given gene from its parents.

**Hybrid vigour:** Superior performance obtained when two breeds, lines or strains which are genetically different are crossed.

**Inbreeding coefficient:** The rate at which heterozygosity is reduced (or homozygosity is increased) per generation in the population.

**Inbreeding depression:** The lowered performance that arises through increased inbreeding.

**Index:** A computed assessment or estimate of an animal's genetic value based on a number of different traits.

**Karyotyping:** The examination of chromosomes.

**Lethal gene:** A gene which when expressed can cause the death of the animal.

**Linkage:** An association between genes so that they appear to be inherited together.

**Mongrel:** A crossbred that is unacceptable or unplanned.

**Monozygous:** Originating from one egg. Identical twins.

**Mutation:** A change in the genetic material (germ plasm) of the organism.

**Natural selection:** Selection which has not been influenced by man.

**Nicking:** A term used to describe a successful cross between two parents.

**Nucleus:** The central part of the cell in which the genetic material — chromosomes and genes are found.

**Performance test:** A method of evaluating an animal based on its own performance relative to its contemporaries.

**Phenotype:** The outward expression of the animal's genetic make-up (genotype).

**Polyploidy:** Having more than twice the normal number of chromosomes.

**Polygenic:** Concerned with many genes.

**Population:** A group of individual animals.

**Prepotency:** The ability of an animal to produce offspring like itself.

**Progeny test:** The evaluation of an animal by examining the performance of its progeny.

**Purebred:** Generally accepted as an animal that can be registered with a breed society or association.

**Random, randomisation:** To arrange according to chance and remove bias caused by any other factors.

**Random Mating:** Where each male has an equal chance of mating with each female.

**Recessive:** An allele that is masked by another dominant one.

**Reciprocal cross:** A cross where the previous parent breeds; strains or individuals have been reversed from male A × female B to female A × male B.

**Relative economic value (REV):** An estimate of the relative value (in money terms) of a number of different traits.

**Repeatability:** A statistical term used to describe the chances of traits being repeated.

**Screen:** To select from a large population those animals that have approved specifications to form an elite or nucleus group.

**Selection differential:** The difference between the mean of the selected parents and the mean of the population from which they came.

**Sex chromosomes:** Chromosomes that are concerned specifically with the inheritance of sex.

**Sex limited:** Traits that are limited by the sex of the animal, i.e., they can only be expressed in one sex.

**Sex linked:** Traits that are carried on the sex chromosomes.

**Stud:** (N) = pedigree flock or herd that produces pedigree animals for sale;  
(adj) = an animal that is registered and has a pedigree and/or performance record.

**Top-cross:** A cross by a sire from a new blood-line of the same breed.

**Autumn-saved pasture (ASP):** Pasture that is saved in the autumn to be eaten during the winter.

**Break feeding:** Feed is rationed by use of a temporary fence (usually electric) moved at frequent intervals.

**Digestibility:** The proportion of an animal's feed intake (i.e. feed eaten) that is digested. The undigested part is excreted. Digestible dry matter (DDM) expresses the proportions of the total dry matter which is able to be digested.

**Dry matter (DM):** The amount of material left after the water has been removed. Using the DM%, comparisons can then be made between different materials, e.g., pasture, swedes, grain, and hay.

**Feed conversion efficiency (FCE):** The amount of the feed needed to produce a given amount of product, e.g., kg feed/kg weight gain; kg feed/litre milk; kg feed/dozen eggs.

**Feed utilisation:** With pasture feeding it is the proportion of the total feed on offer (usually expressed in DM terms) which is consumed by the animal at each grazing. However, it may be expressed on an annual basis, i.e., the proportion of total annual DM which is utilised.

**Fill:** The contents of the intestinal tract of an animal, in ruminants this can be up to 20% of total live weight.

**Maintenance:** The amount of feed required to maintain the animal — to provide for its basic body functions. Extra feed energy is then used for production such as meat, milk, wool, eggs. Nutritionists thus talk about maintenance and production.

**Winter saved pasture (WSP):** Pasture that has not been grazed during the winter and has been saved for early spring use.



# Cattle



## Ageing of cattle and teeth (approximate):

- *Calf* — 8 temporary milk incisors in bottom jaw
- *22–34 months* — 2 permanent incisors
- *27–41 months* — 4
- *33–42 months* — 6
- *41 months* — 8

(Note: Cattle are not called 2-tooths, etc., as sheep.)

**Bobby calf:** Calf to be slaughtered when over 4 days old that has been fed solely on whole milk. The stomach (vel) provides rennet that is used as a coagulant in cheese making. They are calves defined as under 45.5 kg live weight with carcasses of not less than 9.98 kg.

**Boners:** Old cows or bulls for slaughter to produce manufacturing (grinding) beef. Also young stock in very lean condition.

## Breeds of cattle:

<i>Dairy:</i>	Ayrshire	
	Friesian	
	Jersey	
	Milking Shorthorn	
<i>Beef:</i>	Angus	Luing
	Beef Shorthorn	Marchigiana
	Blond D'Aquitaine	Murray Grey
	Brown Swiss	Red Devon
<i>Charolais</i>	Red Poll	
	Chianina	Santa Gertrudis
	Red Dane	Simmental
	Galloway	South Devon
	Hereford	Susses
	Limousin	Welsh Black

**Bull:** Mature entire male. Can refer to an animal of any age from bull calf to aged bull.

- *Run bull:* a non-registered bull for use in commercial herds.
- *Grade bull:* a non-registered bull, usually of dairy breeds.
- *Stud bull:* a pedigree (registered) bull.
- *Marker bull:* a bull (usually vasectomised) fitted with a marking harness to find oestrous cows.
- *Potter bull:* an old bull to be slaughtered for meat.

**Calf:** Young animal of either sex between birth and weaning. Sometimes may be applied to an animal soon after weaning and up to 1 year old.

**Calving percentage:** Number of calves born or weaned per 100 cows joined with the bull.

**Calving interval:** Interval between successive calvings of a cow.

**Conception rate (CR):** Percentage of cows which do not return to oestrus within 49 days of first insemination (49 day non-return rate), or the percentage of cows diagnosed pregnant of those that were mated by a bull.

**Cow:** Mature female of any age but usually over 30 months old.

**Cull cow:** A cow removed (culled) from the herd.

**Down-calver:** A cow about to calve.

**Dairy-beef:** Beef bred in the dairy herd. This can be from straight dairy breeds or crossbred (beef bull × dairy dam).

**De-horning:** Removal of the horns from a cow or bull at any age. It is a requirement prior to entry of animals to freezing works.

**Empty cows:** Non-pregnant cows or heifers (whether mated or not).

**Flank painting:** Painting the side (flank) of a cow, e.g. with anti-bloating substance that the cow licks off itself.

**Freemartin:** The female of a male and female pair of twin calves. The female is usually sterile.

**Heifer:** Term used to describe a young female. Hence there are heifer calves from birth through to weaning, and then heifers up to first joining (at either 1 or 2 years of age). However, it may be used to describe a female of up to and beyond her first calf. Hence there are: in-calf heifers, in-milk heifers, maiden heifers, or bulling heifers (ready to be mated).

**Maiden heifer:** Heifer that has not had a calf. It is often assumed she has not been joined with the bull.

**Nurse cow:** Cow used to rear calves by suckling.

**Poddy calf:** An orphan calf from a beef cow that is artificially reared. May also describe any poorly reared calf.

**Pregnancy diagnosis (PD):** Diagnosis of pregnancy by palpation of the cow's uterus through the rectum wall or using ultrasonic instruments, etc.

**Pregnancy rate:** Percentage of cows in a herd which are "vetted-in-calf" after a breeding programme.

**Steer:** Castrated male of any age. Synonymous with ox and bullock although the latter are applied only to fully grown cattle.

**Submission rate:** Percentage of cows in the herd inseminated or mated during the first 4 weeks (28 days) of the breeding programme.

**Tail painting:** Painting of tail-base of cow to show when she has been mounted by another cow. The paint is rubbed off the cow being mounted and indicates heat.

**Vealers (young cattle):** Vealer carcasses are derived from bovine animals up to 14 months of age, i.e., maiden females, castrated males, and entire males which are not showing bull characteristics.

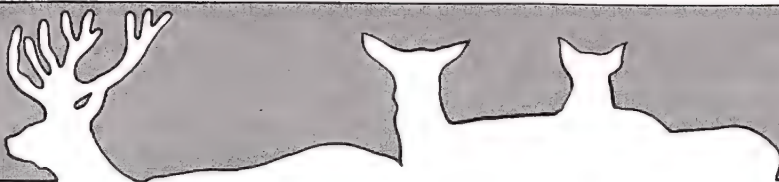
**Vel:** Stomach of calf. See bobby calf.

**Vetted in calf:** Guaranteed pregnant after examination by a veterinarian.

**Weaner:** Weaned calf usually 10 to 18 weeks old for dairy calves and 6 to 10 months old for beef calves.

**Weaning:** In dairy calves this is when the calf stops being given any liquid feed and can be from 6 weeks to 4 months of age. In beef calves, it is removal of calves from their dams that they have single-sucked for 5 to 10 months.

**Yearling:** Young animal about a year old, usually with two permanent incisors.



**Antlers:** These are distinct from the permanent horns of species such as cattle, sheep, and goats. Composed of bone, not horn (keratin), they grow anew each year from pedicles, which are permanent outgrowths of the frontal bones of the skull. They are shed in September/October and new growth starts almost immediately.

**Coronet:** Ring or burr around the base of antlers.

**Female:**

- *Doe:* Mature female, used for breeds other than red deer.
- *Hind:* Mature female red deer.

**Juvenile:**

- *Calf:* Red deer or Wapiti.
- *Fawn:* Fallow deer, but also applied to other breeds.

**Male:**

- *Buck:* Male fallow deer.
- *Bull:* Male Wapiti.
- *Stag:* Male red deer.
- *Spiker:* Juvenile male with two spikes rather than a set of antlers.

**Mane:** Increased growth of hair on the enlarged neck of male Wapiti and red deer during the rut.

**Palmation:** By about their third or fourth season fallow deer develop a distinctive flattening or "palmation" at the ends of their antlers. The edges of the palms are marked by a series of points (cf. spillers, snags).

**Pearling:** Knobbly or ridged texture of antlers of some deer species.

**Pelage:** Coat of deer.

**Roar:** Characteristic sound made by male deer of some species during the mating season. Sometimes used to describe the mating season of deer (cf. rut). Note: Wapiti "bugle".

**Rut:** Mating season.

**Slink:** Calf or fawn in utero valued for skin markings.

**Snags:** (See spillers).

**Spillers:** Palm points of fallow tines.

**Spottie:** Young deer (usually fallow) up to 3 months of age.

**Tine:** Points or branches off the main beam of antlers.

**Velvet:** Early, vascular growth of antlers before they harden off, characterised by a soft velvet coating which dies and is rubbed off when the antlers are mature.



**Weaning:** Fawns or calves suckling their dams are weaned either at 2½–4 months, before the next rut, or at 5–8 months in winter–early spring.

**Types of deer in New Zealand:**

Red deer\*

Fallow\*

Rusa\*

Wapiti\*

Virginian (white tail)

Japanese Sika\*

Sambar

Moose (in Fiordland)

Himalayan Thar

Chamois

\*These are the main farmed species.

*FOOTNOTE: It has been suggested that stag be used for all male deer and hind for all females to avoid complexity, especially when cross-breeding occurs. The view of deer enthusiasts does not support this move as apparently these terms are used internationally and they wish to retain them.*



**Approach:** Action of a dog when it comes up to the sheep.

**Backing dog:** Dog that will jump on to the backs of sheep to help move them.

**Bark:** To give "tongue", "noise", or "speak" on command to frighten and drive the stock.

**Beardie:** Type of dog — very hairy. Usually used as a huntaway.

**Bitch:** Female of any age.

**Bolt:** Run away in fear; out of control.

**Brace:** Pair of dogs that are worked together.

**Cast:** Action of a dog when it leaves its handler to encircle or gather sheep. It can be a right- or left-hand cast.

**Collie (Border Collie):** Sheep and cattle dog of British descent.

**Dingo:** Australian wild dog.

**Dog dosing:** Act of drenching and purging a dog to obtain a sample of faeces to be examined for parasitic worms. This is to comply with legal requirements.

**Dog tucker:** Dog food.

**Dosing strip:** Area of ground where official dosing by hydatids worm control officers is carried out.

**Eye:** Trait of a dog to stare at a sheep; deep concentration on the movements of the sheep. "Stong-eye" or "plain-eye" dogs.

**Eye-dog:** Same as a heading dog. One that shows "eye".

**Handy dog:** General-purpose dog that will head, hunt, back, and perform all the duties required in sheep yards and woolsheds.

**Heading dog:** Dog that goes around or heads off a group or an individual sheep.

**Heel:** Bite (usually cattle) in the heel to make them move. May be a command to return to the owner's side.

**Hunt:** Ability of a dog to drive or hunt stock away from the handler, also to back on command while doing this. It can do a "straight" or "zig-zag" hunt.

**Huntaway:** Special type of New Zealand dog used for mustering. A driving and backing dog that barks on command.

**Kelpie:** Australian sheep and cattle dog.

**Leading dog:** Dog used to go in front of a mob to control its speed and stop it breaking or stampeding.

**Lift:** Action of a dog to move sheep from a standing position.

**Night barker:** Dog that barks or howls when chained up at night.

**Novice:** Young dog that has only competed in a limited number of trials.

**Pull:** Action of dog bringing sheep directly to its handler.

**Pup:** Young animal of either sex up to weaning (6 weeks) and possibly up to about 12 months old.

**Ringing sheep:** Fault in a dog where it goes in a complete circle around the sheep and comes back to the handler. It fails to stop after its out-run, halfway around the sheep, and directly opposite the handler.

**Shed:** To cut off or split off one or more animals from a group.

**Sundowner:** Dog that leaves its work, especially when hot and noisy. A lazy dog.

**Team:** Group of dogs owned by a shepherd that would normally be made up of heading dogs, huntaways, backing dogs, leaders, and general purpose (handy) dogs.

**Trucking Dog:** Dog kept specially to help load stock into trucks.

**Turning tail:** Fault in a dog whereby it turns away from the sheep in a complete circle. It fails to "face up" to the sheep all the time.

**Weaning:** Removal of pups from the mother usually 5–6 weeks of age.

**Whelp:** To produce a litter of pups.

**Whip-shy:** Dog that is frightened by the crack of the stockman's whip.

**Worrier:** A dog that chases, attacks, or kills sheep.

**Yarding:** Putting sheep into yards or woolshed with a dog or team of dogs.

# Fencing

## Electric fencing:

<i>Amp:</i>	Unit of current. Watts divided by voltage.
<i>Current:</i>	It is current and the duration and rate of its flow which causes a shock. Increasing voltage increases current. Current decreases as resistance increases. A.C.: Alternating current as from mains power supply. D.C.: Direct current as from batteries.
<i>Capacitance:</i>	Ability to store a charge of electricity.
<i>Capacitor:</i>	Stores electrical charges and pulse energy which builds up in the capacitor and is released by the SCR switch into the fence at approximately one per second.
<i>Electrolysis:</i>	Corrosion which occurs when different metals are connected in a wet environment such as with electrical connections on a fence line.
<i>Impedance:</i>	Combination of resistance, inductance, frequency, and capacitance (sometimes called A.C. resistance).
<i>Induction:</i>	Power transfer without contact. For example, charging of "dead" or neutral fence wires which run parallel to live ones.
<i>Insulator</i>	A material across which an electric current will not flow.
<i>Joule:</i>	Unit of energy. Watt $\times$ seconds. The measure of "kick" of a fence pulse.
<i>Leakage:</i>	Conductance from the fence line to ground, caused by poor insulators, shorts, and growth on the wires.
<i>Measurements:</i>	500 ohms (2 mS) — the maximum a human or animal body can conduct, in the worst conditions, e.g., with feet and hands in salt water. 5,000 ohms (0.2 mS) — the equivalent of a cow touching an electrified wire.
<i>Ohm:</i>	Unit of resistance. The ohm scale is a reverse one, i.e., low numbers indicate heavy load, and high numbers indicate light load.
<i>Outrigger:</i>	An electrified wire attached to a conventional fence. Supported so it is away from the fence.
<i>Power consumption:</i>	Electricity consumption does not increase with leakage on the fence line, because most energisers operate on maximum all the time and the VDRs absorb the unused surplus. A BEV II uses 17 watts, i.e., $17 \times 24 \text{ hrs} = 408$ watts/hours or 408 units per day.
<i>S.C.R.:</i>	Silicon controlled rectifier which is a transistorised pulse switch.
<i>Siemens:</i>	Unit of conductance, leakage or load. Reciprocal of ohm. 1 Siemens = 1 ohm, 1 millisiemens (mS) = 1,000 ohms.
<i>V.D.R.:</i>	Voltage dependent resistor. Prevents voltage of more than

5,000 volts from leaving the unit by short circuiting the excess voltage.

**Volt:** Unit of electrical pressure which causes current to flow.  
Voltage = current  $\times$  resistance.

**Watt:** Unit of power, both electrical and mechanical. 746 watts = 1 h.p.

**Auger:** A tool for boring holes in timber or for boring post holes in the ground. Various sizes are available.

**Batten:** Used to keep the wires on a fence at equal distances apart. It also gives the fence strength. Can be made of wood, steel, wire, chains or plastic strip. Same as dropper.

**Breast plate:** Piece of timber placed in the ground that supports the stay at a strainer, angle, or corner post. Sometimes called stay foot.

**Bridge spikes:** Large nails (usually galvanised) with square head and shank which are used to attach the decking (top planks) on a bridge to the stringers (supports).

**Cap rail:** Top rail on cattle yards used for walking on. Top rail on wooden fence.

**Cattle stop:** A device in a roadway or track that stock will not cross. Usually made of spaced bars over a pit. May be called cattle grid.

**Chain:** An imperial unit of length used to measure fencing. 22 yards. Now 20 metres is used as metric equivalent.

**Contract:** The arrangement between farmer and fencer to define what work has to be done. May be a verbal contract or a legal contract with detailed specifications.

**Crowbar:** Steel bar for making holes in ground, sharpened at one end. Also used as a general purpose lever.

**Dead man:** An anchor to which a strainer, angle, or corner post is tied back. It is buried firmly in the ground.

**Dogs:** (See gudgeon).

**Dropper:** Same as a batten (see batten). Used in parts of South Island and Australia.

**Fence:** The legal definition of a fence is as follows: A substantial post, batten and wire fence, having not less than seven wires, not more than two of the wires being barbed; barbed wires to be placed in a position agreed upon by the persons interested, or to be omitted if those persons agree; the posts to be of durable timber, metal, stone, or reinforced concrete, and not more than 5.03 m apart, and securely rammed and, in hollows or where subject to lifting through the strain of the wire to be securely footed, or stayed with wire; the battens to be of durable timber or metal, evenly spaced, and not less than four in each space between the posts; the wires to be galvanised and not lighter than No. 8 gauge; the barbed wire to have barbs spaced 0.15 m apart, and to be galvanised; the bottom wire to be not more than 0.12 m from the ground, the three bottom wires to be not more



than 0.12 m apart; and the top wire to be not less than 1.14 m from the ground; all wires to be strained tightly and fastened to or let through the battens and posts to provide a tight, durable, stock-proof fence.

In practice a boundary fence can be modified by agreement.

**Fence laying:** Delivering materials to the fence line and laying them out before work starts. Materials can be packed out on horseback, dropped by fixed-wing aircraft, or helicopter.

**Fence line:** The actual position of the fence.

**Fencing types:** Main types are:

- *Pig fence:* Usually made of wire netting 1.07 m high.
- *Panel fence:* Made from wooden panels or palings.
- *Post and rail:* Made from wooden posts joined by rails.
- *Deer fence:* Usually made from netting 1.8 m high.
- *Wire:* 7 wires is the legal requirement for a boundary fence. Other fences can have any number of wires.

**Foot:** A block of wood attached by wire to a post and buried with the post in the posthole, or some other device to stop the post being pulled out when the fence is strained.

**Footing:** Same as foot. It may describe the material used for the foot.

**Fixed foot:** Where the foot itself is secured to the post before it is put in the hole.

**Swinging foot:** Where the foot is not fixed to the post other than by the foot wire. It is rammed separately into the post hole.

**Fencing pliers:** A combination hand tool used to cut and bend wire.

**Flying fox:** Wire between two dead men used to carry fencing materials when laying out a line in steep hill country.

**Gate:** The structure which closes the access way between pens and paddocks. There are many kinds made from wood, pipe, and steel. Different functions such as lift and swing, drafting gate, backing gate.

- *Taranaki:* Made from fence battens and wire and pulled tight by a simple lever.
- *Flood:* Used across a stream so that it rises and falls with the water level.

**Grass fence:** Fence made by two electric fence wires at the same height and 1 metre apart — where the herbage grows between wires.

**Gudgeon:** The part of gate hinge assembly that is fixed to the gate post. The hinge straps fit over the gudgeon.

**Guide wire:** A wire used to define the position of the finished fence.

**Hinges:** Used to allow the gate to swing — made up of gudgeons and straps.

**Hot fence:** An electric fence or a traditional fence that has been electrified.

**Jenny:** Device for unrolling rolls of wire along a fence line. May be called a spinning jenny or a wire spinner.

**Knots:** Are used to join wire. Main types are figure 8 and double loop.

**Maul:** A large wooden hammer for driving pointed stakes.

**Measuring up:** Calculating the length of the fence and the materials needed to estimate costs.

**Netting:** Fencing wire woven into a net with varying-sized mesh.

**Outrigger:** An electrified wire placed away from the main fence but attached to it.

**Peg:** A pointed piece of timber used to mark out the exact line of fence.

**Pinchbar:** Similar to crowbar, maybe smaller.

**Posts:** Used to support the wires on a fence. Many kinds such as:

- *Strainer posts:* Main support posts at either end of the fence to which the wires are strained.
- *Intermediate posts:* The posts between the strainer posts. May be called line posts.
- *Angle posts:* Posts placed where the fence changes direction. Need extra support by stays or tie-backs.

**Timber for fences:**

- *Radiata pine:* Posts, battens.
- *Totara:* Posts, battens, foots.
- *Rimu:* Battens.
- *Australian hardwood:* Battens and electric fence posts.
- *Treated posts:* Posts treated with a preservative to protect them from rotting.

For sizes and shapes, etc., see MAF Facts and Figures for Farmers.

**Post driver:** Tool or machine for driving pointed posts into the ground.

**Post cap:** Metal cover for a post to protect it from the weather.

**Post hole borer:** Machine to bore a hole in the ground in which the post is inserted.

**Ram:** To consolidate earth around a post.

**Rammer:** Tool used to consolidate earth around a post.

**Ratchet:** Part of a fence strainer to retain the strain while tightening the wires.

**Tension:** The strain put on each wire in a fence.

**Tension meter:** A device to measure the strain in a fence.

**Self-tapping bolt:** A threaded bolt that makes its own threads when screwed into a post. Example is the thread on a gudgeon.

**Standard:** A metal post.

**Standard lifter:** A lever for removing standards.

**Staples:** U-shaped, double-pointed nails used to secure wire to wooden posts.

**Stays:** Support for strainer or angle post.

**Stay block:** (See breastplate).

**Stock proof:** Describes a fence which effectively restrains stock from straying.

**Strain:** The tension put on the wires in a fence.

**Strainer:** Tool used to tighten the wires in a fence. Also end post or assembly.

**Stringer:** Main weight-bearing truss in a bridge. Usually made of timber.

**Tie-downs:** (See dead man).

**Tie-wire:** Wire that ties the dead man to the post.

**Tie-back:** (See tie-wire).

**Twister:** Tool to make a twitch.

**Twitch:** A twisted tie-wire of two or more strands.

**Twitch wire:** (Same as tie-wire).

**Twitch stick:** Twister made of wood or steel.

**Wire:** There are many kinds of wire:

- *Plain:* Smooth.
  - *High tensile:* Very strong wire, usually 12½ gauge (2.5 mm).
  - *No. 8 wire:* Smooth wire, 8 gauge (4 mm).
  - *Barbed:* Two smooth wires into which barbs are spun at intervals.
- (For further details see MAF Facts and Figures for Farmers.)

# Goats



## Breeds of goats:

- Milking:* Saanan  
Toggenburg  
British Alpine  
Anglo-Nubian
- Fibre:* Angora  
Feral goats

**Browse:** Feeding habit of a goat — picking mouthfuls from here and there as they move. Also the name given to shrubby material that is eaten.

**Buck:** Entire male goat of any age. The term “Billy goat” is used although buck would be the preferred term for angora or milking goats.

**Cashmere:** Fine downy wool from the Cashmere goat.

**Doe:** Mature female goat. “Nanny goat” is used but doe would be the preferred term for angora or milking goats.

**Kid:** Young male or female goat.

**Kidding:** Process of producing an offspring (kid).

**Mohair:** Fine hairy coat of an angora goat.

**Teeth and ageing:** Same as for sheep.

**Weaning:** If kids suckle their dams, weaning occurs at about 4 months as in sheep. In dairy goats, kids are bottle or bucket fed and could be weaned off liquids at any age.

**Wether:** Castrated male (as in sheep).

# Horses



**Brood mare:** Mare kept for breeding.

**Colt:** Entire male usually less than 3 years old.

**Filly:** Female usually less than 3 years old.

**Foal:** Juvenile of either sex up to weaning (4–6 months).

**Gelding:** Castrated male of any age.

**Horse:** Mature entire male. Also used as a general term for all horses.

**Mare:** Mature female.

**Stallion:** Mature entire male.





**Accelerated conditioning (AC):** The procedure of electrically stimulating bodies immediately following slaughter, or carcasses immediately after dressing. This causes carcasses to go into rigor mortis within about 2 hours after slaughter after which they can be frozen without toughening the meat.

**Blast freezers:** Freezers for rapidly reducing the temperature of carcasses by placing them in a strong current of air circulated by strong fans.

**Boner:** Carcasses of animals intended for use as manufacturing meat (mince, hamburger, sausages, etc.) and usually graded as manufacturing. It is currently illegal in New Zealand to sell as cuts meat from carcasses graded as manufacturing.

**Cannon bone:** The long bone in the foot of animals that is removed from sheep and cattle at slaughter (the metacarpals and metatarsals).

**Carcass weight (CW):** Care is needed in its definition as to whether it is the following:

- **Cold CW:** After spending a period in the chiller.
- **Hot CW:** Freshly dressed after slaughter.
- **Fats-in CW:** Complete with kidney and pelvic (channel) fat present. Carcasses for consumption in New Zealand are weighed with fats in.
- **Fats-out CW:** With kidney and pelvic fats removed. Export carcasses are weighed with these fats removed.
- **Shrunk CW:** Export works and abattoirs automatically deduct at the scales from some classes of stock an estimate of shrinkage (the loss of weight between slaughter and sale).

**Casings:** Fibrous layers stripped from intestines and used as sausage skins.

**Chiller:** Cool room with temperature above freezing point.

**Conditioning and ageing (C & A):** The process developed in NZ of holding carcasses at slightly higher than normal temperatures in a chiller to allow them to go into rigor mortis before freezing. This prevents toughening of the meat which will occur if freshly killed carcasses are immediately frozen.

**Conformation:** The shape of an animal or its carcass, e.g. short and thick (blocky) versus long and leggy.

**Cure:** Preservation usually through the use of salt plus nitrite to prevent botulism — may be followed by smoking.

**Cut-out:** A term often applied to the proportion of saleable product obtained from a carcass excluding fat and other trim, and bone where this is normally removed as for beef.

**Dressed carcass:** The basis for most meat animal transactions and is the body after slaughter from which the viscera, skin and head (except for pigs) and some other parts have been removed. Usually abbreviated to carcass (not to be confused with the entire dead body of an animal).

**Eye muscle (*m. longissimus dorsi*):** Two muscles each running the length of the back on each side of the spinal column. The eye muscle is the main piece of red meat seen in a lamb chop and makes up the important Porterhouse, T-bone and sirloin steaks in beef as well as being an important component of rib roasts.

**Fancy meats:** Edible offal.

**Fat cover:** The fat over the surface of the carcass, usually an important factor taken into account when grading.

**Finish:** A term usually applied to animals considered to have an adequate fat cover for a particular market or carcass grade.

**Freezer:** Cold room with temperature below freezing.

**Hide:** Skin of a cattle beast.

**GR measurement:** A measurement (mm) used by the Meat Producers' Board to mark the cut-off point between carcasses that are acceptable and those that should be graded overfat (F). It is the tissue depth between the carcass surface and the rib, taken in the region of the 12th rib at a point 11 cm from the carcass mid line.

**Grading:** The classification of meat carcasses. It is the basis for payment together with carcass weight for carcasses sold for export (on schedule). For details see MAF Facts and Figures for Farmers.

**Killing-out percentage:** Also known as dressing-out percentage or dressing percentage. This is the dressed carcass weight expressed as a percentage of live weight before slaughter.

Care is needed in definition. The dressed carcass weight may be the actual weight or weight with some standard deduction for shrinkage. The live weight used may be off pasture, or fasted weight at the freezing works where errors due to fill (gut contents) are reduced.

**Lamb:** A lamb carcass comes from a sheep under 12 months of age, with the proviso that a lamb ceases to be classed as a lamb for meat purposes after September 30 in the year following that in which it was born.

**Lean cuts:** Cuts from lean animals. In addition beef cuts from the leg tend to be leaner than those from the loin (porterhouse, T-bone), rib, and shoulder region.

**Meat:** The flesh of animals — may contain bone (e.g. lamb chops) or be boneless (beef). May contain skin (pork) or refer to offal (liver).

**Muscle:** The red meat in a carcass of animals (or white muscle in birds) made up of individual muscles which enable the animal to move and provide protein to a consumer.

**Muscling:** A term meant by users to indicate that an animal or carcass has more or less muscle (red meat) than another animal or carcass. However, different users of this term are often referring to different characteristics. A poorly defined term.

**Offal:** The internal organs of the body that are removed when the body is "dressed" after slaughter. Can be divided into edible offal (heart, liver, kidney, etc.) and inedible offal (lungs, stomach and intestines) although the tripe may be saved from the stomach of cattle and in some countries most of the internal organs are considered edible.

**Pelt:** The skin of a sheep.

**Pluck:** The name given in a meatworks to the lungs, heart, diaphragm, wind pipe and other pieces removed as one item from the chest cavity of slaughtered animals.

**Primal cuts:** The wholesale cuts of meat. For export lamb these are usually the shoulder, rack (ribs), loin, leg, and shank making up approximately 81% of the carcass. A greater number of primal cuts are taken from beef carcasses.

**Tallow:** Rendered fat from sheep and cattle — hard fat.

**Prime stock:** Animals ready for slaughter. The term "prime" is now preferred to "fat".

**Schedule:** The price offered by Meat Companies for various weights and grades of meat.

**Shrinkage:** Loss of carcass weight (mainly water) between slaughter and sale. For export lamb it is usually 4.5%, and zero for export beef. For local consumption beef and sheep meat, the weight loss for shrinkage is variable.

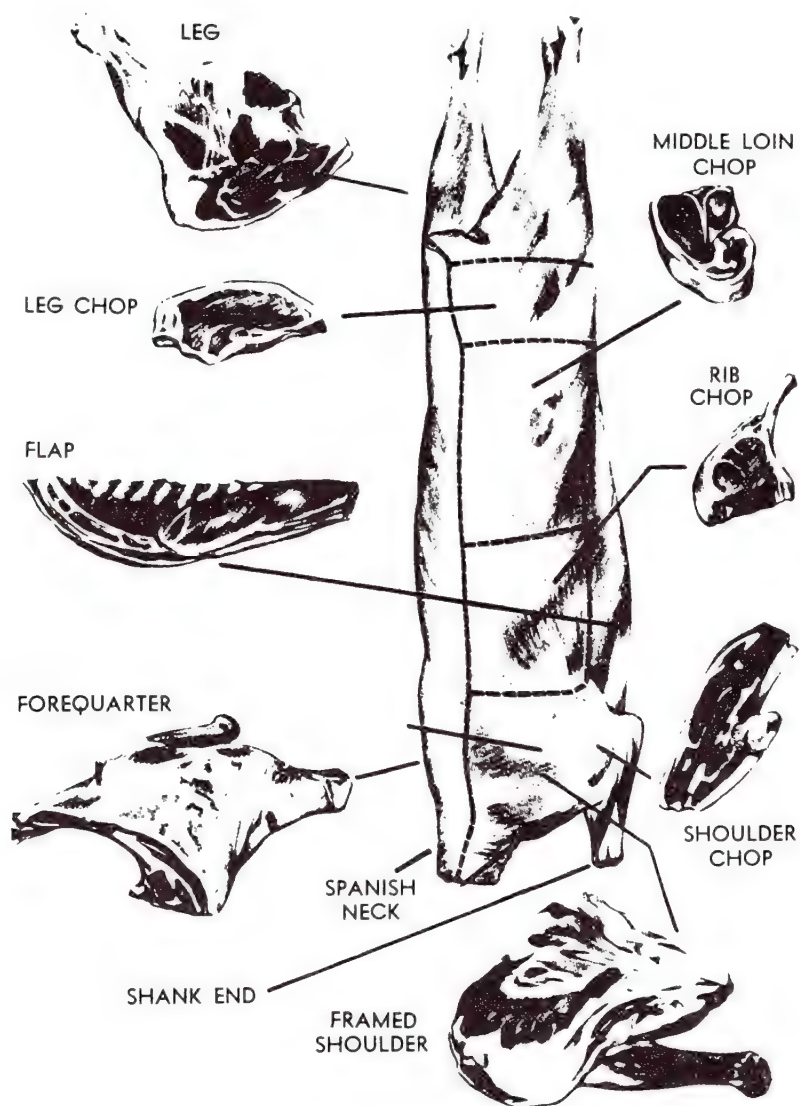
**Trimming:** The fat and meat removed in preparing wholesale and retail cuts for sale.

**Undercut:** Another name for fillet steaks from the psoas muscle — very tender meat.

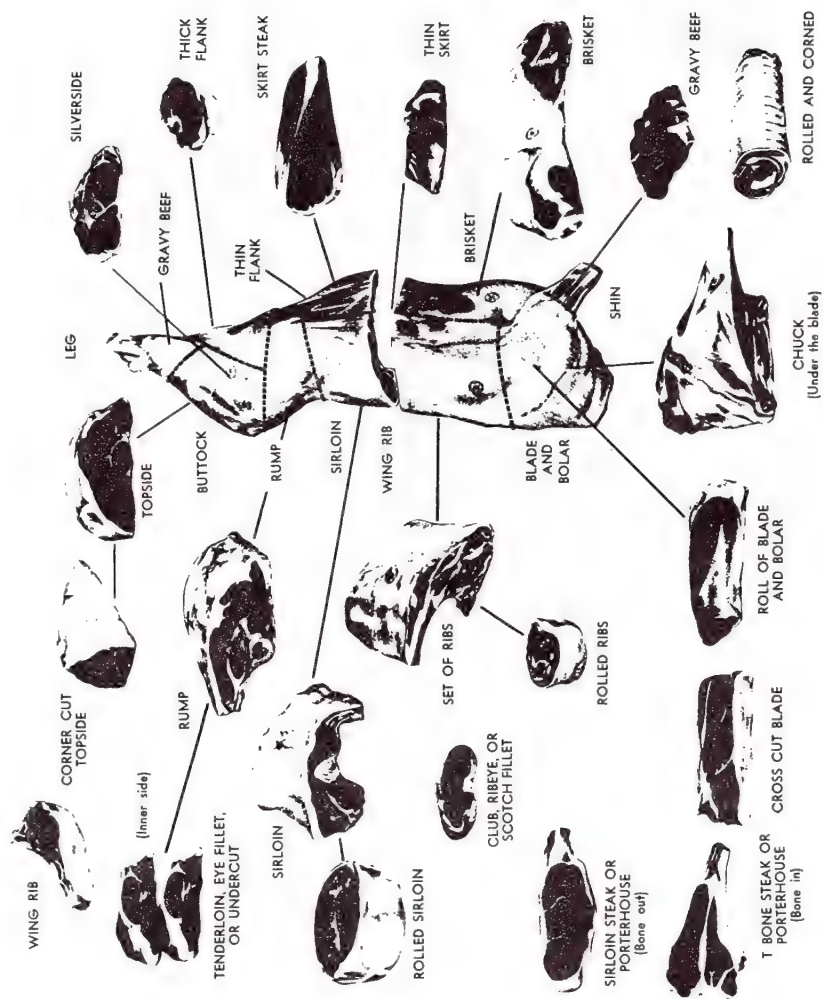
**Vealer:** A young cattle beast, normally not over 12 months old with a carcass not exceeding 160 kg in weight for export, or 163 kg for local consumption (distinct from bobby veal).

**Weasand:** Oesophagus. The muscular tube connecting the throat to the stomach down which food and drink passes.

**Yield:** The percentage saleable meat (red meat with an acceptable fat cover) in a beef carcass. Normally ranges from 50 to 70%.

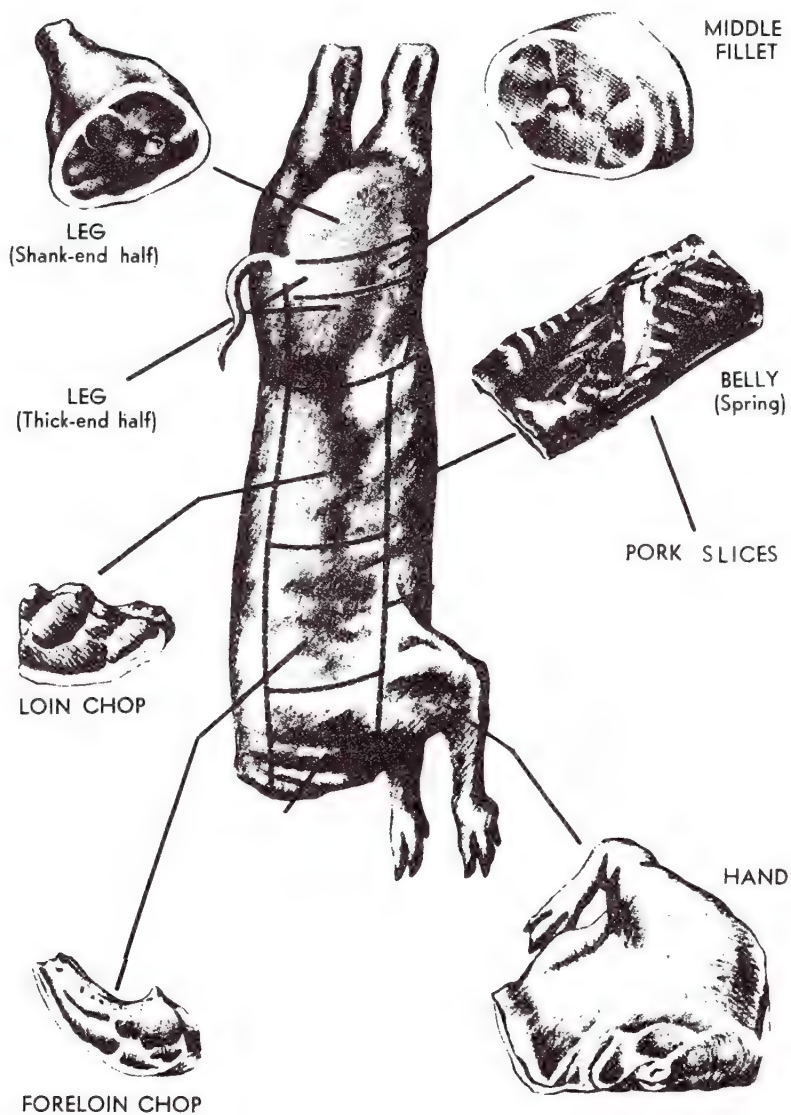


## Lamb cuts



## Beef cuts





## Pork cuts



**Air admission hole:** An aperture in the cluster to admit air.

**Bulk Milk Cell Count (BMC):** Bulk milk cell count which indicates subclinical mastitis (see somatic cell count).

**Breeding index (BI):** The best estimate of the genetic merit of a cow or bull.

**Chemical Metering Unit:** A device for feeding chemicals into the cleaning water of a reverse flow cleaning system, in controlled quantity.

**Claw:** The manifold that spaces the teatcups in forming a cluster and connects them to the long milk and long pulse tubes.

**Cluster:** An assembly comprising teatcups, claw, long milk tubes, and long pulse tubes.

**Colostrum:** The first milk drawn from the udder after calving. This milk is rich in nutrients and antibodies for the calf. On the fifth day after calving the milk is considered normal and suitable for sale.

**Contract mating:** A contract with a farmer to mate his high Breeding Index cows to high Breeding Index bulls to produce young bulls for further testing.

**Cowshed:** Building where cows are milked. Many variations on basic types.

- *Chute:* Where cows are held in a straight line for milking at the side. They all enter and leave the shed together (now obsolete).
- *Tandem:* Cows stand in a straight line for milking at the side. They can enter and leave each unit individually.
- *Walkthrough:* Cows stand on floor level or raised step and are milked from the side. Cows leave each bail through the front.
- *Internal race:* Similar to walkthrough except that cows leave shed by an internal race.
- *Angle-park:* Cows stand on raised step at an angle to the milker, cups put on from the side. Cows leave each bail through the front.
- *Herringbone:* Cows are milked in two rows standing at an angle to the milker who is in a pit at udder level. Cups put on from the side. All the cows enter and leave together.
- *Rotary turnstyle:* Cows are milked on a rotating platform with the milker on the outside and the cows facing the centre. The cows step on to the platform and reverse off. Cups are put on from behind.
- *Rotary herringbone:* Similar to rotary turnstyle except that the milker is in the centre and the cows face outwards.

**Cowshed (abbreviations):**

<b>HB HL</b>	herringbone highline
<b>HB LL</b>	herringbone low line
<b>IR</b>	internal race
<b>TS</b>	turnstyle
<b>AP</b>	angle-park
<b>RHB</b>	rotary herringbone

**Cup remover:** A device to automatically remove the teat cups from the cow when milking is completed.

**D.I.Y.:** Do-It-Yourself artificial breeding where the farmer inseminates the cow.

**Droppers:** Tubes which hang down and carry the milk or pulsation tubes.

**Expected calving order:** A report listing the farmers' cows in date-of-calving order. Used as an important management tool.

**Filter element:** An approved washable or disposable material used for filtering milk.

**Foremilk:** The first milk drawn from the udder prior to milking.

**Herd testing:** A programme where the milk yield (litres), fat percentage, and fat yield (kg) are estimated from periodic sampling of each cow.

Two types:

- *Official:* Where an officer of the LIA is present during milking to record milk volumes and collect samples for testing.
- *Self sampling:* Where the farmer himself collects samples from the herd.

Frequency of Testing:

- Traditional was once per month.
- Most common is once per alternate month.
- Also Production Rank Test (PRT) of two tests at 90 day intervals.

**Inflation:** (Same as liner).

**In-line filter:** An approved device for removing impurities from the milk by means of a filter element. The filter element is contained within an enclosed chamber installed in-line and as part of the releaser pump delivery line.

**Interceptor (vacuum tank):** An interceptor vessel situated on the main airline immediately upstream from the vacuum pump to prevent liquid or foreign matter gaining access to the pump.

**Jetter:** Part of the milking equipment that holds the teat cups and connects the air line to the milk line for flushing (washing).

**Keratin:** Antibacterial material found in the teat canal. This is the cow's first natural defence against infection.

**Let down:** The release of milk into the udder system.

**Line:** The milk and vacuum line. High line is an assembly above head height and a low line is generally just above floor height.

**Liner (inflation):** A flexible sleeve having a mouthpiece, a barrel, and an integral or separate short milk tube. Fits inside teat cup.

**LIA:** Livestock Improvement Association. A regional organisation concerned with the administration of herd testing and artificial breeding.

**Lifetime average PI:** The average Production Index of a cow for the total number of years under test.

**Long milk tube:** The connecting tube between the claw and the milk pipeline (i.e., this includes the metal dropper).

**Long Pulse Tube:** The connecting tube between the claw and the pulsator (dropper).

**Mastitis:** An infection of the udder:

C.M.T.: Californian Mastitis Test.

R.M.T.: Rapid Mastitis Test.

**Milk contact surface:** A surface in direct contact with the milk or a surface from which liquids may drain, drip, or be drawn into the milk.

**Milk Cooling System:** A means of cooling milk to an approved temperature utilizing a plate cooler, a surface cooler, and refrigeration, either singly or in combination.

**Milkfat:** The total fat content of the milk. Same as butter fat.

**Milk flow indicator:** A device for enabling the flow of milk from the cluster to the milk line to be observed (sightglass).

**Milk meter:** A device between the cluster and the milk pipeline for measuring an animal's milk yield in either weight or volume.

**Milk protein:** These are Albumin, Globulin, and Casein.

**Milk pump:** A pump that pumps milk from a container at atmospheric pressure and discharges to a milk storage vessel at atmospheric pressure.

**Milk — solids not fat (SNF):** The protein, sugar (lactose), and ash (minerals) in the milk.

**Milk storage vessel:** A vessel to which the releaser pump or milk pump discharges milk.

**Milk total solids:** The combined total of milk fat and solids not fat.

**Milking machine:** A complete machine installation for milking, usually comprising vacuum and pulsation systems, one or more clusters and other components.

**Milk meter:** A device between the cluster and the milking pipeline for measuring an animal's milk yield and provides a sample for milk testing.

**Milking ratio:** The percentage of the pulsation cycle during which milk flows from the teat.

**Non-leakage device:** A device for preventing water or cleaning solutions from the reverse flow cleaning system entering the milking plant during the milking operation.

**Plate cooler:** A heat exchanger containing a number of thin formed plates (plate pack) of approved material through which heat is transferred from the milk to a coolant.

**Proof:** A progeny test result on a bull.

**Pulsation chamber:** The annular space between the liner and the teat cup.

**Pulsator:** A valve mechanism for producing cyclic pressure change.

**Pulsation:**

- *Pulsation cycle:* One complete liner movement sequence.
- *Pulsation rate:* The number of pulsation cycles per minute.
- *Alternate pulsation:* When cycle movement of half the number of liners in a cluster alternates with the movement of the other half.
- *Simultaneous pulsation:* When cyclic movement of all liners within a cluster are synchronised.

**Pulsator controller:** A mechanism to operate pulsators, either integral with a single pulsator (self-contained pulsator) or a system controlling several pulsators.

**Receiver:** A vessel that receives the milk from one or more milk pipelines and feeds the releaser.

**Production index:** A single measure of a cow's productive ability compared to other cows in the herd after allowing for breed, age, and stage of lactation differences. It is based on the cow's actual performance.

**Recorder jar:** A vessel that receives, holds and measures milk from the individual animal before being discharged.

**Releaser:** A mechanism for removing milk from under vacuum and discharging it to atmospheric pressure.

**Releaser pump:** A pump that removes milk from the receiver and discharges it to a milk storage vessel.

**Releaser pump suction line:** Tubing or piping of approved material through which the releaser pump takes suction from the receiver.

**Releaser pump delivery line:** Tubing or piping of approved material through which the releaser pump discharges to the milk storage vessel.

**Reliability:** Shows the degree of confidence that can be placed on a BI. Not to be confused with conception rate (CR).

**Restrictor:** An adjustable valve placed in the air line between the receiver and the interceptor.

**Reverse flow cleaning system:** A system whereby cleaning fluids are pumped through a milking machine under positive pressure and regulated discharge, in the reverse direction to normal milk flow.

**Reverse flow dairy hot water heater:** A MAF approved device for heating water to regulation temperature.

**Reverse flow dairy hot water overflow pipe:** The standard open conduit to atmosphere from the interior of an approved dairy hot water heater.



**Reverse flow system pump:** A pump for delivering the requisite flow of cleaning water to the milking machine.

**Safety valve:** A device for relieving excess water pressure in the system.

**Sanitary trap:** An interceptor vessel interposed between the sanitary (milk) system and the air system to prevent contamination by movement of liquid from one to the other.

**Short milk tube:** The connecting tube between the interior of the liner and the claw milk nipple.

**Short pulse tube:** The connecting tube between the pulsation chamber and the claw air nipple.

**Sight glass:** The glass through which milk passes on the way to the milk line. Shows when milk flow is finished.

**Sire proving scheme:** Scheme to progeny test young highly-selected dairy bulls.

**Sire services:**

- *Nominated sire:* A sire that has been individually selected.
- *Premier sire (PSS):* A group of bulls available to the farmer. He can choose the breed but not the individual bull.

**Somatic cell count:** Counts the white blood cells in the milk to give an indication of sub-clinical mastitis. Somatic cells are part of the cow's natural defence mechanism and cell counts rise when the udder becomes infected. Can be estimated indirectly by rolling-ball viscometer and Coulter counter.

**Standard plate count:** This is used to measure the numbers of bacteria found in a sample from the bulk milk in the vat. It usually indicates the cleanliness of the milking plant.

**Stimulation:** Activation of the cow's milk release or "let-down" by washing or massaging the udder before milking.

**Strainer:** An approved device for removing impurities from the milk by means of a filter element situated between the receiver and releaser pump. A strainer may, in some instances, be situated in the receiver.

**Surface cooler:** A heat exchanger containing a number of tubes of approved material over which the milk is passed with resultant transfer of heat from the milk to a coolant.

**Teat:**

- *Teat orifice:* opening at end of teat.
- *Teat canal (streak canal):* the opening through the teat end.
- *Teat cistern:* the space inside the actual teat into which milk flows.
- *Teat grand cistern or grand sinus:* the space in the lower part of the udder in which milk accumulates.

**Teatcup:** An assembly consisting of a rigid shell (or case) with a short pulse tube and a liner.

**Teatcup crawl:** The action of the teatcup crawling up the teat during milking to a point where it could cut off the milk flow.

**Teat spray:** A sanitiser sprayed on teats after milking to control mastitis by reducing the bacterial level on the teat.

**Test day returns:** The computed cumulative production records in herd testing.

**TOP. Traits Other than Production:** Traits such as temperament, susceptibility to disease, conformation reported by farmers on the Sire Proving Scheme.

**Udder:** The milk gland of the cow, made up of separate quarters. The cow has four teats. The udder comprises the vessel (bag) and the teats.

**Unit:** Same as cluster. The assembly to milk one animal at one time.

**Vacuum gauge:** A differential pressure gauge to indicate the level of vacuum in the system.

**Vacuum pump:** An air pump to produce vacuum in the system.

**Vacuum regulator:** An automatic valve designed to maintain a steady vacuum.

**Vacuum tank:** (See interceptor).

**Vacuum tap:** The clamp, tap, or vacuum cut-off valve on the long milk tube.

**Unit:** That assembly of milking machine components that is replicated in an installation so that more than one animal can be milked at one time.

**Vacuum tube:** The connecting tube between a milk receiving bucket and the air pipeline.

**Vat:** A holding tank for milk prior to collection by the Dairy Company's tanker.

**Wash (cow):** Washing the udder to stimulate let-down of milk prior to milking.

- *No-wash:* Milking cows without washing.
- *Volume wash:* Where udders are hosed down with large volumes of water to wash and stimulate let down.

**Washing systems (for equipment):**

- *Reverse flow:* A system whereby cleaning fluids are pumped through a milking machine under positive pressure and regulated discharge in the reverse direction to the normal milk flow.
- *Third line:* Washing system where the water flows down another line and back through the milk line. The lines are joined by jetters.
- *Flush:* Where buckets of correct volumes of cleaning water are carried to the clusters. These fluids follow the milk flow.

**Venturi:** A device for feeding chemical solutions into the discharge line of the reverse flow pump.



**Baconer:** Pig slaughtered at about 80 kg live weight (60 kg carcass) to produce bacon and ham.

**Barrow:** Any castrated male.

**Boar:** Usually a male pig being used or ready for service. However, can be used to describe any uncastrated male pig of any age.

**Breeds:** (In order of importance in New Zealand)

Large white

Landrace

Berkshire

Welsh

Hampshire

Tamworth

Wessex saddleback

Large black

Also feral pig (Captain Cooker) and kuni kuni (Maori pig).

**Farrowing:** Process of giving birth to a litter. Thus farrowing pen, farrowing house, farrowing crate are places where a sow farrows.

**Farrowing index:** Average number of litters a sow has in a year.

**Gilt:** Female pig of any age from birth to have her first litter.

**Hog:** General term usually used to describe young pigs. May be used for castrates or barrows but not specific (American).

**Litter:** All the piglets (young pigs) produced at one birth.

**Porker:** Pig slaughtered at about 50 kg live weight (40 kg carcass) for fresh meat.

**Runt:** Small poorly developed pig in a litter.

**Sow:** Female pig that has had at least one litter.

**Sucker:** Young pig of either sex still suckling its dam.

**Super porker:** Pig of bacon weight killed for trimmed pork cuts.

**Weaner:** Weaned pig (removed from its dam) up to about 10 weeks of age.

**Weaning:** Removing the pigs (suckers) from the dam. Usually done between 3 and 8 weeks of age.

**Albumen:** The white of an egg, made up of four different layers.

**Australorp:** Breed of fowl developed in Australia from Black Orpington. Dual purpose bird.

**Avian:** Relating to birds.

**Bantam:** Small kind of fowl.

**Battery cages:** A number of hen cage units arranged in single or multiple decks with provision for watering, feeding, collecting eggs and disposing of droppings.

**Beak trimming:** Used to prevent or control cannibalism.

**Blood spot:** May be caused by the rupture of small blood vessels in the bird's ovary at the time of releasing the yolk into the oviduct. Blood is seen in the white or attached to the yolk membrane of the egg.

**Boiler:** An adult fowl used for meat after egg production is finished.

**Broiler:** Young meat chicken about 1.8 kg liveweight at 41 days of age.

**Broiler Breeder:** Parent of commercial meat chicken.

**Brooder:** Equipment used for providing artificial heat for young chicks from 1 day up to 3–4 weeks.

**Broodiness:** Desire in a hen to sit on eggs, known as broody or "clucky". A brooding hen is a hen used for hatching eggs and rearing young chicks.

**Candling:** Visual examination of eggs by holding them between the eye and a light source to test for characteristics associated with edible quality or hatchability.

**Cannibalism:** Vice that may occur in chickens of all ages. Feather picking and toe picking are simpler forms of cannibalism, which usually start under conditions of overcrowding at brooding. This may develop into more serious forms of head, wing and vent picking which can lead to death. Dim light intensity may help control cannibalism.

**Capon:** Castrated male chicken. Caponization = castration.

**Chalaza:** Spiral strings of dense albumen, opposite one another on yolk of an egg (maintain axis of orientation when egg is turned during early stages of incubation).

**Chicken:** 1. The domestic fowl, *Gallus domesticus*, family Phasianidae. Birds including chicks, broilers, hens, pullets, cockerals and cocks.  
2. Chicken, chick: poultry one month old or less.

**Clutch:** Number of eggs laid on consecutive days.

**Cock:** A mature male chicken.

**Cockeral:** A male chicken less than one year old.

**Crop:** Pouch-like enlargement of the digestive system at the base of the neck. Serves as a receptacle for food.

**Culling:** Elimination of unproductive or otherwise undesirable birds which judged from their physical characteristics are found to lack the qualities for which they were reared, whether it be for egg or meat production or for show purposes.

**Deep litter system:** System of keeping poultry in a house, on the floor of which is placed litter composed of wood shavings saw dust, etc., of about 15 cm depth.

**Drake:** Adult male duck.

**Dubbing:** Cutting or trimming of comb to prevent injury to the comb.

**Duckling:** Young duck.

**Egg Floor:** Licensed marketing agent appointed by the Poultry Board in all egg marketing areas, to receive, grade and distribute eggs to retailing outlets.

**Egg Grader:** A machine used for grading eggs. Eggs pass over a weighing device which sorts them into the four different grades, namely 7s, 6s, 5s and 4s.

**Egg Marketing Area:** Usually refers to a city area, where eggs must either be sold directly from the poultry or to the egg floor.

**Egg-type stock:** Birds which belong to a breed that is able to produce a good number of acceptable sized eggs, e.g. Shaver 288, Shaver 444T, Ross Tint, Ross Brown.

**Entitlement:** License necessary to farm more than one hundred laying hens which can only be purchased by buying a going concern poultry farm.

**Filler flat:** Tray made of moulded paper or plastic for transporting eggs.

**Flock:** Birds of the same age in one group.

**Forced moult:** Deliberate moulting of birds by drastic changes in food and environment to give the bird's reproductive system a rest before a further period of lay.

**Gander:** Adult male goose.

**Gizzard:** Part of digestive system of poultry used to grind the food.

**Gosling:** Young goose.

**Hatchery:** A place where eggs are artificially incubated and where day old chicks are sold.

**Heavy breeds:** Dual purpose or meat type stock weighing 2.5 kg or more at point of lay.

**Hen:** A mature female chicken or turkey.

**Incubation:** The hatching of eggs by means of heat, natural, or artificial. Incubation period = period between the setting and hatching out of eggs, being 21 days for chickens.



**Incubator:** Apparatus used to hatch eggs by supplying heat and humidity artificially.

**Infertile egg:** Egg laid by a hen without fertilisation from cock, incapable of embryonic development.

**Light breeds:** Egg laying type breeds, weighing about 1.8 kg at point of lay.

**Mash:** A mixture of ground feeds for feeding poultry, usually a complete ration in itself.

**Moulting:** The biological process in a hen of shedding old feathers to grow a new coat annually. Usually the first annual complete moult is undergone at the conclusion of the first year of laying. Good producers moult late and intensely, go very bare, and quickly come back into production. Low producers are noted for dropping only a few feathers at a time and take a long time before coming back into production.

**Oviduct:** Long tube in hen's body through which the yolk is moved and in which the albumen, shell membranes and shell are formed.

**Oviposition:** Laying of an egg.

**Point of lay:** Period just prior to the laying of the first egg, when the bird's metabolism is changing to the productive level. The comb and wattles at this stage become larger and bright red.

**Poult:** A young turkey before sexual maturity.

**Poultry:** Domesticated species of birds reared for eggs, meat or feathers; include chickens, ducks, geese, turkeys, guinea fowls, etc.

**Prolapse:** Eversion of part of the oviduct and rectum through the vent.

**Pullet:** Female bird ready to lay or in its first peak production.

**Stag (or Jack):** Adult male turkey.

**Wattle:** Fleshy appendage at each side of the base of the beak, more strongly developed in male birds.

# Sheep



**Ageing:** Sheep, like all ruminants have no top teeth. They have a hard dental pad. Lambs are born with eight small temporary milk incisors (front teeth) and these are replaced in pairs, from the centre outwards, at certain ages. Hence you can "mouth" or age a sheep and estimate its age. (There is considerable variation in the age of eruption of teeth.)

- *Lamb* — 8 temporary milk teeth
- *Hogget* — 8 temporary teeth — centre pair of permanent teeth start to erupt about 12 months
- *2-tooth* — centre pair of permanent teeth (12–18 months)
- *4-tooth* — second pair (21–24 months)
- *6-tooth* — third pair (30–36 months)
- *Full mouth* — a complete set of teeth, 4 pairs = 8 teeth (42–48 months)

After 4 years, teeth cannot be used to age a sheep.

**Bearing ewe:** A ewe that has everted (pushed out) its vagina.

## Breeds:

<i>Specialist wool:</i>	Booroola Merino Carpetmaster Drysedale Merino	Pigmented Polwarth Tukidale
<i>Dual purpose:</i>	Borderdale Border Leicester Border-Merino Border-Romney Cheviot Cheviot Corriedale	Coopworth Corriedale Perendale Romney Romney-Corriedale
<i>Specialist meat</i>	Dorset Down Hampshire Poll Dorset Ryeland South Dorset Down	Southdown South Hampshire South Suffolk Suffolk

**Broken mouth:** Ewes that have lost some of their permanent teeth.  
Synonymous with failing-mouth.

**Cast sheep:** A sheep found lying on its back that cannot get onto its feet unaided, usually because of advanced pregnancy, heavy fleece, or lying in a hollow.

**Crutching:** Removal of wool from the tail end of sheep.

- *Ring crutch* — removal of minimal area of wool from around vulva and anus.
- *Full crutch* — removal of wool from around udder, back and inside of legs and up over tail. May include half the belly wool.
- *Belly crutch* — removal of wool from the brisket, full belly, inside legs, udder, vulva and over tail.

Removal of wool from the head (eye wiggling) may be done at same time.

**Dagging:** Removal of wool from the posterior of sheep coated with faeces.

**Dry ewes/hoggets:** Females which have not produced a lamb after being joined with a ram.

**Dry/dry and wet/dry:** See definition under Reproduction.

**Draft or cast-for-age (CFA):** Old ewes that have had a number of lamb crops, usually four, and are sold to be moved to easier, flatter country and often mated to a meat-breed sire.

**Ewe:** Mature female sheep, usually after 2 years of age.

**Flushing:** Extra feeding before joining to help stimulate ovulation in the ewe and hence produce more lambs.

**Flystrike:** A condition where blowfly maggots attack the sheep.

**Flock:** Group of sheep.

**Foot:**

- *Foot bath* — a trough containing treatment for foot rot through which the sheep are driven.
- *Foot rot* — )
- and* — ) Bacterial diseases of the feet.
- *Foot scald* — )
- *Foot paring* — cutting of excess horn from the feet.

**Gummies:** Old ewes that have lost their teeth. Also term used to describe gum boots, rubber boots, or wellington boots worn by farmers.

**Hogget:** Young sheep between weaning (4 months old) and 14–16 months of age. The hogget stage usually ends when the animals are shorn (around 14 months old). There are ram hoggets, ewe hoggets and wether hoggets.

**Hogget:** For meat purposes a hogget carcass comes from a sheep between 12 and 24 months of age, i.e. from yearling sheep. For administrative purposes, after September 30 in the year following that in which a sheep ceases to be classed as a lamb it can no longer be classed as a hogget. Also, a hogget carcass cannot exceed 26.0 kg for export but there is no upper weight limit for consumption in NZ.

**Income retention scheme:** Scheme administered by the Wool Board to reduce the fluctuation in wool growers' incomes between years of high and low wool prices. Should the AWASP exceed the announced trigger price at a particular sale, growers' proceeds are levied at the rate of 50% of the difference between the AWASP and the trigger price expressed as a percentage of the AWASP. The proceeds of the levy are held by the Reserve Bank in individual non-interest bearing grower retention accounts refundable in five years, or earlier under certain circumstances.

**Joining:** Putting the ram with the ewes, intending them to mate. Usually 1 ram to 40–50 ewes although 1 ram per 100 ewes is now common and 1:200 is recommended (FPP 121). The term "put to the ram" is commonly used.

**Lamb:** Young sheep between birth and weaning. Term is used widely, e.g., milk lamb, weaned lamb, shorn lamb, ram lamb, ewe lamb, wether lamb.

**Lambing percentage:** Measure of the number of lambs produced from the ewes in a flock. It can be expressed in many different ways, e.g. number lambs born/100 ewes joined (to the ram), number lambs docked/100 ewes joined, number lambs weaned/100 ewes joined, number lambs weaned/100 ewes lambing. Usually number docked/100 joined unless otherwise stated.

**Maiden ewe:** Female that has not lambed. It is often assumed she has not been joined.

**Mixed-age:** Term used to describe sheep of mixed ages. Usually all ages other than 2-tooths.

**Mulesing:** Cutting off the wrinkles around the tail of Merino lambs with hand shears to reduce the risk of fly strike.

**Off-shears:** Newly-shorn sheep. A sale term.

**Pizzle:** The extended sheath of the sheep's penis. Pizzle rot is an infection of the sheath.

**Ram:** Mature entire male sheep.

- *Flock ram:* A non-pedigree ram used in a commercial flock.
- *Stud ram:* A pedigree (registered) ram.
- *Tail-up ram:* A ram that is run with ewes at the end of joining to mate any late-cycling ewes.

**Shearling:** Male or female 14–18 months of age. Shearling = 1 shear or once-shorn sheep. Two-shear = twice-shorn sheep.

**Slink:** Dead lamb (i.e., born or died soon after birth) which is processed for its skin.

**Snow raking:** Rescuing snow-bound sheep.

**Tupping:** Term synonymous to mating. Tup is a British term for a ram.

**Weaning:** Removal of lambs from their mothers, usually at 10–16 weeks.

**Wether:** Castrated male of any age.

**Adjusted weighted average sale price (AWASP):** Average price per kilogram (greasy) of wool sold at a particular auction adjusted for seasonal variations in the proportion of wool types offered in that sale.

**All on the board:** Call given to shearers when the last sheep of a mob has been caught for shearing.

**Bacterial stain:** Discoloration arising from the exudation of bacteria present in a fleece under conditions of high temperature and humidity. Most stains are unscourable.

**Bale:** Package of wool in a regulation wool pack, weighing at least 100 kg. Maximum packed weights allowed under regulations are 181 kg for fleece and lambs wool and 204 kg for oddments.

**Bare-belly:** Sheep with all the wool scraped or shed from its belly.

**Bash:** Wild uncontrolled blow by a shearer.

**Basil:** Tanned sheepskin used for the manufacture of light leather.

**Belly wool:** Wool from the underside of a sheep.

**Bin:** Receptacle for holding loose wool prior to pressing in either a shearing shed or woolstore.

**Binders:** Wool fibres running more or less obliquely between two or more staples thereby holding a fleece of wool together.

**Binning:** Broker service for the disposal of small or mixed lots of wool. Each growers' wool is classed and weighed to bins with similar types from other

**Blades:** Sheep hand shears.

**Blocky:** Square tipped staple.

**Bloom:** Attractive appearance of freshly-shorn wool which disappears with storage.

**Bootlace:** Long thin strip of skin, usually cut from a wrinkled sheep while shearing the last side.

**Brand:** Coloured mark used as identification on either a wool bale or a sheep's back or side.

**Break:** Temporary slowing or cessation in the growth of wool fibres which results in their becoming visibly finer with a marked loss of tensile strength.

**Brightness:** Property by which wool reflects light somewhat after the manner of powdered glass. A characteristic of Merino wools and most Merino cross wools.



**Britch wool:** Wool off the britch or lower thigh of the sheep.

**Broken:** Pieces of fleece wool from which the short and dirty ends have been removed.

**Broker:** (See wool broker).

**Broomie:** Person who sweeps the shearing board clean during shearing (also called sweepo).

**Burry wools:** Wool containing burrs such as clover burr and Bathurst burr.

**Bush stain:** Discoloration of wool with charcoal from bush burns. More commonly referred to as log stain.

**Canary stain:** Bright yellow unscourable discoloration of wool which occurs under conditions of high temperature and high humidity following a thorough wetting of the fleece.

**Carpet wool:** Wool suitable for the manufacture of carpets. Three main types are used by New Zealand manufacturers; heavily medullated, harsh handling specialty carpet wools; coarse crossbred fleece and second shear and crossbred oddments.

**Catalogue:** Listing prepared by the wool broker of lots, and their description, of wool offered for auction.

**Catching pen:** Pen adjacent to a shearing stand in which a shearer catches sheep for shearing.

**Chalkiness:** Property by which Down and very hairy wools reflect light. Sometimes termed whiteness.

**Character:** Composite description of staple definition, staple crimp clarity and tendency to blockiness in fleece wool. Graded as excellent, very good, good, average, poor, bad, and very bad.

**Charcoal stain:** Discoloration of wool with charcoal from bush burns. More commonly referred to as log stain.

**Chip:** Small pieces of dried faeces in crutchings.

**Chute:** Ramp from the porthole in a shearing shed taking sheep to a lower level.

**Classing:** Grouping together similar wools into saleable lines.

**Clean on floor (COF):** Price of a lot of greasy wool on the auction floor expressed on a clean wool basis after adjustment for yield.

**Clean wool:** Scoured wool.

**Clip:** Quantity of shorn wool from a defined area (farm or locality) or group of sheep.

**Coarse:** Usually synonymous with strong. Sometimes used to mean coarse handling.

**Cobbler:** Sheep which is difficult shearing.

**Comb:** Stationary unit of shearing handpiece which enters and holds the wool as it is cut. Also a machine which aligns fibres during manufacture.

**Combined sale:** Wools physically valued in two or more centres and sold in one centre.

**Condition:** Amount of non-wool constituents, such as yolk, sand, or earth present in greasy wool.

**Conventional sale:** Wools from the selling centre area shown conventionally or with samples. Sale can include wool for sale by separation.

**Conventional showing:** Bales opened for buyer appraisal by cutting the ends or sides of a proportionate number of bales in each lot.

**Cott:** Fleece that has become matted during growth. A very badly matted fleece is termed a hard cott and a lightly matted fleece a soft cott.

**Count:** Shortened form of yarn count. Commonly misused to mean a subjective assessment of fineness of greasy wool (see quality number).

**Count-out pen:** Pen adjacent to a shearing stand into which sheep are released after shearing to be counted.

**Crimp:** Natural wave formation of wool. In general the smaller the waves in a staple the finer the fibre.

**Crossbred wool:** Type of wool grown by Romney, Perendale, Coopworth, Leicester, and Lincoln sheep and their crosses with other than Merino or part-Merino breeds. A lustre wool varying in fineness from 36's to 56's in quality number.

**Crutchings:** Wool removed from the posterior of sheep at crutching. Normally coarser, and in the case of crossbred wool, more medullated than the remainder of the fleece.

**Cut out:** Shearing term for the end of a mob or a shed.

**Cutter:** Reciprocating unit of shearing handpiece which cuts the wool against the stationary comb.

**Dags:** Wool contaminated with faeces which is either adhering to, or has been clipped from, the posterior of sheep.

**Dead wool:** Wool plucked from a dead sheep. May contain cellular debris from the skin known as scud.

**Dingy:** Discolouration due to condition and dust.

**Doggy:** Lacking a defined staple crimp. Normally applicable only to Merino wool.

**Double fleece:** Fleece wool which is more than 12 months wool growth (also called overgrown).

**Down tube:** Jointed tube containing flexible drive shaft connecting shearing handpiece to an individual electric motor or overhead gear.

**Down-type wool:** Wool of characteristic appearance and handle grown by sheep derived from crossing fat lamb breeds such as the Suffolk, Hampshire

**Drummer:** Slowest shearer on the board who shears at the bottom of the board furthest away from the wool table.

**Early shorn wool:** Fleece wool which is usually 7–10 months growth and lightly hanging together as a fleece.

**Expert:** Australian term for the person who grinds the shearing gear, and keeps the handpieces and plant in order. Often a retired shearer.

**Extra choice scheme:** Direct sale of wool by growers to the Wool Board at prices based on recent auctions with deductions for costs to cover subsequent reselling. Restricted to short periods between selling seasons.

**Eye clips:** Trade term for wool removed from the side of the face at crutching which though soft often contains a high proportion of kemps.

**Fadge:** Package of wool in a wool pack weighing less than 100 kg.

**Fibre:** Single strand of wool.

**Flannel back:** Cotted second shear fleece wool.

**Fleece:** Body wool shorn from a sheep.

**Fleeco:** Person who handles freshly shorn fleeces in a shearing shed.

**Free:** When fleece is either not cotted or without vegetable matter contamination.

**Full wool:** Ten to thirteen months growth of wool.

**Gang:** (See shearing gang).

**Gasper:** Sheep gasping for breath while being shorn. Usually caused by grass coming up into the sheep's throat.

**Grading:** Making one large relatively even line for sale and a small bin line containing markedly different offsorts. Applicable to crossbred clips.

**Greasy wool:** Wool as shorn from the sheep and containing the natural impurities of wax, suint, and dirt.

**Grind:** Sharpening of combs and cutters on a revolving abrasive disc.

**Grouping:** See Interlocking.

**Gun:** Fast shearer of outstanding ability.

**Gut:** Flexible drive shaft of shearing machine which is encased in downtube.

**Hair:** Fibre similar in chemical composition to wool but containing a medulla.

**Halfbred wool:** Type of wool growth by either Corriedale, New Zealand Halfbred, or similar sheep containing between a quarter and three-quarters Merino blood.

**Halo hair:** Long coarse fibres which stand out from the birth coat of some lambs. Generally shed within two months of birth. Also called mother hair.

**Handle:** Feel of wool.

**Handpiece:** Hand-held portion of a shearing machine.

**Hungerfine:** Ultra fine wool induced by starvation.

**Income stabilisation scheme:** Broadly based scheme incorporating the income retention scheme and the minimum price support scheme as means of reducing the yearly fluctuation in wool growers' incomes.

**Integrated sale:** Wools from two or more centres sold by separation or sample in one centre. The auctioning centre may offer a proportion or all of its wool by sample.

**Interlotting:** Method of preparation of wool for sale by a wool broker whereby one to three straight bales of a type from one grower are matched with other growers' bales of a similar type to make a saleable line. Also called grouping.

**Kemp:** Short, white, brittle medullated fibres which are shed. Though generally confined to the head and legs, these fibres occur in the fleeces of specialty carpet breeds and in some crossbred and down-type sheep, particularly the Cheviot.

**Kicker:** Sheep that struggles and kicks while being shorn.

**Lambs wool:** Wool shorn from lambs.

**Line of wool:** Several bales of wool of a similar type.

**Locks:** Short wool which has either fallen through the wool table or been swept from the shearing board (also spelt lox).

**Log stain:** Discoloration of wool with charcoal from bush burn. Also called bush or charcoal stain.

**Longwool sheep:** Sheep of British ancestry growing a coarse fleece of more than 100 mm staple length in 12 months, e.g., Romney, Coopworth, Leicester, and Lincoln.

**Lot:** Line of wool offered for sale. Minimum of four bales (460 kg) for conventional showing except under special conditions where a lesser number of bales may be offered as a star lot, or ten bales for sale by sample.

**Lot building:** Method of preparing wool for sale where lots of less than 10 bales from different growers are matched according to type to give lots greater than 10 bales to be offered for sale by sample.

**Lustre:** Sheen characteristics of some coarser types of wool, e.g., Lincoln and Leicester.

**Medium wool:** Middle of the range of a specific type of wool. Normally implicitly applied with respect to fibre diameter.

**Merino wool:** Type of wool grown by sheep with more than three-quarters Merino blood.

**Micron:** Unit of length used to measure wool fibre diameter. One micron equals one millionth of a metre. Abbreviated to  $\mu\text{m}$ .

**Minimum floor price scheme:** Scheme administered by the Wool Board where a grower is guaranteed a minimum price for each type of wool in his clip sold for the first time (greasy or scoured) either at auction in New Zealand or at Bradford; or privately (greasy) if the wool is appraised by the Board. The floor price is fixed, normally at the start of the season, by agreement between the Board and Government, with the scheme being financed by the Board charging a two per cent levy on all wool protected by the scheme at the time of sale.

**Minimum price support scheme:** Presently a combination of the minimum floor price scheme and the supplementary minimum price scheme.

**Mixed lot:** Lot containing more than one type of wool.

**Moit:** Light vegetable matter contamination (also called shive).

**Mushy:** Wool which is lacking character. Usually a sign of low fleece weight.

**Neck wool:** Matted collar of wool from around the neck of a sheep.

**New wool:** Wool used in the manufacture of fabrics for the first time. Replacing the term virgin wool.

**Oddments:** Parts of the fleece, other than body wool, which are sold separately, e.g., belly, neck, pieces, locks, and crutchings. Except for crutchings, which are shorn at a different time, the rest are usually removed from the fleece on a wool table after shearing, before the fleece wool is baled.

**Off-sort:** Fleece which, when classing or grading, does not fit the established lines and is binned.

**Overgrown:** Fleece wool which is more than 12 months wool growth. If very long, may be called double fleece. Sheep with an overgrown fleece are commonly called stragglers because they have missed a muster.

**Pencil staple:** Wool with a thin staple.

**Pieces:** Body wool trimmings removed from the fleece when it is skirted after shearing. The longer pieces are termed first or bulky pieces while the shorter pieces are termed second pieces.

**Pink 'em:** Make a very good job of shearing a sheep. Shearers sometimes call this a "special cut".

**Pizzle stain:** Unscourable urine staining in wether and ram bellies, and ewe crutchings.

**Plain:** Straight fibred wool lacking crimp.

**Porthole:** Opening or doorway by which sheep leave the shearing board.

**Pre-lamb shearing:** Shearing ewes during late winter or early spring before lambing.

**Presser:** Person in a shearing shed who packs the wool into bales in a wool press.



**Pressing:** Compressing loose wool into bales in either a shearing shed or woolstore.

**Quality number:** Subjective estimate of the fineness and consequent spinning capacity of a wool. Based on the Bradford worsted yarn count system for wools spun to their limit, but now simply an arbitrary system to describe relative fineness.

**Quarterbred wool:** Type of wool judged to be from sheep containing between five- and seven-eighths Merino blood and between three- and one-eighths longwool blood.

**Reclassing:** Classing of wool in a woolstore which was not sorted according to type at shearing. Wool brokers charge extra for this service and offer the wool for sale under the grower's brand.

**Ringer:** Fastest shearer in a shearing gang who usually shears on the stand closest to the wool table.

**Rough 'em:** Rough shearing. Opposite to pink 'em.

**Rouseabout:** General hand working in a shearing shed. Also called a rousie.

**Run:** Interval of time between breaks when shearing.

**Run-out fleece:** Fleece showing a variation in crimp formation between the butt and tip of the staple.

**Sale by sample:** Method of displaying wool before an auction where only a sub-sample withdrawn mechanically from the line of wool (minimum of 10 bales) is displayed in a cardboard box for buyer evaluation along with a yield test certificate.

**Sale by separation:** Where a line of wool is held in one wool selling centre while a mechanically withdrawn sub-sample is offered for sale by sample in another wool selling centre.

**Sandy back:** Sheep with sand, grit, or dirt in the back wool.

**Scouring:** Washing wool to remove the natural impurities of wax, suint, and dirt.

**Season (wool selling):** July 1 to June 30.

**Second cut:** Wool which is cut twice during shearing when the first cut is above the base of the staple. These short pieces of wool are of little value.

**Second shear wool:** Wool from sheep shorn more frequently than once every eight months.

**Selling centre:** Centre where wool is sold by public auction. Namely Auckland, Napier, Wanganui, and Wellington in the North Island and Christchurch, Timaru, Dunedin, and Invercargill in the South Island.

**Shearing board:** Area in shearing shed where sheep are shorn.

**Shearing gang:** Group of people employed by a farmer to shear, sort, and bale his wool clip.

**Shearing shed:** Building in which sheep are shorn. Commonly abbreviated to shed.

**Shed:** Abbreviation for shearing shed. Also the opening between warp thread on a loom through which shuttle passes.

**Shedhand:** Persons, other than shearers, working in a shearing shed.

**Shed-up:** Shutting woolly sheep in a shearing shed before shearing to prevent them getting wet from rain or dew.

**Sheepo:** Person who works sheep in a shearing shed and fills the catching pens. Shearers give the call of "sheepo" to signify that their catching pen is empty.

**Simultaneous sale:** Two selling centres operating on the same day allowing North and South Island wools to be sold at the same time.

**Single yarn:** Yarn composed of one strand of thread.

**Sixty-nine:** Call made to let shearers and shedhands know that ladies and visitors are entering a shearing shed.

**Skep:** Pronounced skip. Trolley for carrying loose wool in a woolstore or mill. Also called a dobbin.

**Skirting:** Removing oddments from a fleece after shearing.

**Slipe wool:** Wool recovered from pelts in abattoir. Body wool typed as woolly lambs, shorn lambs, and sheep. Oddments typed as seconds, thirds, and slipemaster.

**Snob:** Last sheep in the catching pen.

**Snowed-in:** When shearers are ahead of the wool table, so that wool is lying around the floor waiting to go on the wool table. Also described as woolled-up.

**Sound:** Wool without a tensile weakness.

**Staple:** Naturally formed cluster of fibres in a fleece. Staples are joined by crossfibres (binders) which bind the fleece together.

**Stand:** Area immediately surrounding an individual shearing machine.

**Star lot:** Lot of wool of less than four bales, or three in the case of super wool. Generally sold after the main catalogue.

**Steely:** Wool with a shiny appearance that lacks crimp. Associated with copper deficiency.

**Strata price control (SPC):** Price support scheme operated by the Wool Board to prevent sudden downturns in the price of specific types during an auction sale. Price limits are adjusted daily as dictated by the market.

**Stringy:** Wool with a thin staple.

**Strong:** Wool with a coarse fibre diameter for its type. Descriptive gradation between coarse and fine wool within a specific type is extra-strong, strong, coarse, medium, fine, extra-fine.

**Style:** Combined assessment of the degree of excellence or fault of wool. Involves a consideration of extent of staple crimp clarity, staple tippyness, freedom from unscourable discolouration and extent of vegetable matter contamination. Graded as super, good, average, and inferior or by letters such as A, BB, B, C, and D.

**Suint:** Natural water soluble impurity of wool grease.

**Supplementary minimum price scheme:** Scheme initiated by the government to take effect in the 1978–79 season increasing the Wool Board guaranteed “floor” price to woolgrowers by a direct payment up to a government regulated supplementary minimum price (SMP).

**Sweat locks:** Short, heavy condition staples from the upper inside of the legs.

**Sweepo:** Person who sweeps the shearing board clean during shearing. Also called broomie.

**Tally:** Number of sheep shorn by a shearer or a gang in a day, or the number of sheep in a gang.

**Tar boy:** Person who walks the board where sheep are prone to fly strike and puts a smear of tar on the shearing cuts made in response to the shearers’ call “tar”. Tar is now replaced by modern antiseptics and fly repellants.

**Tender:** Wool with a tensile weakness. A less severe form of break.

**Threequarterbred wool:** Type of wool judged to be from sheep containing between three and one-eighths Merino blood and between five and seven-eighths longwool blood.

**Tippy:** Wool with a very pointed tip to the staple.

**Topknot:** Wool shorn from the top of a sheep’s head.

**Trigger price:** Price agreed between the government and the Wool Board as the price above which a proportion of the sale proceeds are “skimmed off” by the Board and lodged in grower retention accounts (see income retention scheme).

**Type:** Suitability of wool for a particular form of processing and end use or the wool of a particular breed.

**Unsound:** Wool with a tensile weakness. Incorporates both tender and broken wool.

**Up in the air:** When a shearer is moving his handpiece around in the air while shearing, cutting more air than wool.

**Vegetable matter:** Seed and small pieces of twig, foliage, chaff, or hay embedded in a fleece.

**Virgin wool:** Wool used in the manufacture of fabrics for the first time. Being replaced with the term “pure new wool”.

**Wasty:** Poorly grown wool.

**Webby:** Mild entanglement of fibres within a fleece. Early stage of cotting.

**Whipping side:** Last side of a sheep to be shorn.

**White-washing:** Shearing young lambs, from which little wool is shorn.

**Wigging:** Shearing wool from the head of sheep. Normally carried out at crutching. The trade term for this wool is eye clips. Also known as topknots or wigs.

**Wool-away:** Call made when a fleece has not been cleared off the shearing board and is in the shearer's way.

**Wool broker:** Firm which prepares and offers a growers' clip for sale on a fee or commission basis.

**Wool buyer:** Person who buys wool from a grower either privately by direct treaty or at auction on behalf of a processor and arranges shipment to the processor.

**Wool classer:** Person trained to group together wools of a similar type.

**Wool grease:** Natural impurities of wool (wax and suint) secreted by glands attached to the wool follicle. Also called yolk.

**Wool merchant:** Person or firm trading in wool.

**Wool table:** Slatted table on which fleece wool is skirted and classed.

**Woolgrower:** Sheep farmer.

**Woolled-up:** When the shearers are ahead of the wool table, so that wool is lying around the floor waiting to go on the wool table. Also described as snowed-in.

**Woolly hog:** Fleece from a hogget unshorn as a lamb.

**Woolmark:** Symbol on a product indicating that it is made from 100% virgin or pure new wool with a small allowance for some other decorative fibre.

**Woolpack:** Jute or polypropylene bag of regulated dimensions for packing wool in a shearing shed or wool store.


**Woolscour:** Plant where wool is scoured.

**Woolshed:** (See shearing shed).

**Woolstore:** Place where wool is prepared and offered for sale.

**Yield:** Proportion of useable fibre present in a lot of greasy wool expressed as a percentage. Though common usage implies a washing yield, several types of standard are in commercial use being wool base yield, clean wool content yield, and both a theoretical and commercial top and noil yield.

**Yolk:** Natural impurities of wool (wax and suint) secreted by glands attached to the wool follicle.



## Hides and Skins

**Cockle:** Lamb/sheep pelt defect. A preventable disease resulting in the development of nodules over the pelt surface.

**Dresser skin:** Woolly lambskin which is suitable for processing into leather with the wool attached for rugs, car seat covers, coats, etc.

**Fellmongering skin:** Woolly lamb/sheepskin which will be processed into leather after all the wool has been removed.

**Fellmongery:** Factory or department in abattoir or freezing works where wool is removed from lamb/sheep skins.

**Grain:** Surface layer of pelt, hide or leather containing wool or hair follicles.

**Green skin:** Undried skin from a farm or slaughterhouse. Such skins have no keeping quality.

**Hide:** Derived from a cattle beast.

**Liming:** Chemical modification of the hide or pelt with alkali to make softer and more pliable leather.

**Paint:** Chemical mixture capable of penetrating skin and loosening the wool.

**Painting:** Application by spray or other means of a dewooling mixture to the flesh side of the skin.

**Pelt:** Lamb/sheep skin after wool removal.

**Pickled pelt:** Lamb/sheep pelt preserved for export with brine and sulphuric acid. The product from the fellmongery.

**Pinhole:** Lamb/sheep pelt defect. Small holes in the grain caused by wool fibres growing in groups. Prevalent in fine wool breeds.

**Ribby pelts:** Pelts off wrinkly sheep, such as Merino, which are of restricted value for leather manufacture.

**Skin:** Derived from sheep, goat, deer, opossum.

**Slink:** Dead lamb (i.e. born or died soon after birth) which is processed for its skin.

**Slipemaster:** Machine used to recover wool from pelt trimmings in a fellmongery.

**Slip wool:** Wool recovered by a wool puller, chemically loosened with a sodium sulphide and hydrated lime mixture.

**Sweating:** Method of dewooling skins dependent on induced bacterial degradation to loosen the wool. Used principally in France.



**Wet blue:** Hide or skin tanned with chromium salts, which also colour it blue/green, and kept in the wet state.

**Wool pull:** Estimate of weight of wool able to be removed from a skin in a fellmongery.

**Wool puller:** Person or machine who removes the wool from a lamb/sheep skin after it has been chemically loosened.

# Agricultural Chemicals

**Acaricide:** A chemical which kills mites, ticks and spiders.

**Acceptable residue:** See Residue.

**Acid equivalent:** The commonest hormone weedkillers are derivatives of MCPA, 2,4-D, or 2,4,5-T. These initial letters and numbers are abbreviations for the appropriate acids. For instance, 2,4-D is 2,4-dichlorophenoxy acetic acid. The actual 2,4-D compounds commonly used in the field are salts and esters of the acid and are formed by certain chemical groups replacing the hydrogen of the  $\text{-COOH}$  group of the parent acid. The chemical used in the field therefore might be the sodium salt of 2,4-D. The weight of the salt or ester formed from a given weight of parent acid varies according to the weight of the group which replaces the hydrogen. Thus 1 kg of parent 2,4-D acid will produce 1.10 kg of the sodium salt, but 1.42 kg of the butoxy-ethanol ester.

By international agreement, accepted common names like 2,4-D refer to the particular acid. Now that these names are widely used and accepted, there is no longer any need for the term acid equivalent to be used. It is not now used on labels.

**Active ingredient:** The active or pesticidal ingredient in the formulated product is called the "active ingredient", as distinct from the solvents or diluents in the formulation. The amount of active ingredient is usually expressed in New Zealand as g/litre (%) for liquids and g/kg (%) for solids. Occasionally ml/litre (%) is used for liquids.

**Adhesives:** Materials which are added to formulations or sprays to assist adhesion of dry residues to plant surfaces.

**Adjuvant:** Any component which improves the characteristics of a formulation or mixture of sprays.

**Aerosol:** A preparation consisting of an active ingredient in solution which when liberated, using liquefied gas as a propellant, forms a cloud of very finely subdivided liquid or solid particles, which may remain suspended for several hours, in air.

**Agricultural chemical:** Chemicals or formulations of chemicals used in agriculture. In this sense it includes pesticides, stock remedies and fertilisers.

When used with reference to the Agricultural Chemicals Act, or regulations under the Act, the term has a meaning defined in the Act. In this sense it includes only those chemicals which control pests affecting plant life or any chemicals which in any way affect plant life. It includes rodenticides, but excludes animal remedies, agricultural lime and fertilisers.

**Alkali:** A base soluble in water. A base is a class of chemical compounds which combine with acids to form salts. An alkali is neutralised by acids, and an acid is neutralised by alkalis.

**Antidote:** A substance which counteracts a poison. For many poisons there is no known antidote. Treatment of poisoning therefore usually consists of:

- Removing the poison by thorough washing with copious quantities of water of all affected parts and removal of contaminated clothing, use of a stomach pump if poison has been swallowed, fresh air, artificial respiration, etc.; and
- The treatment of symptoms of poisoning.

**Antitranspirant:** A substance designed to prevent moisture losses from plants caused by transpiration.

**Aphicide:** A chemical used especially to kill aphids.

**Application:** The applying of an agricultural chemical. The times of applications of weedkillers and other pesticides are classified in different ways, depending on whether the crop plants have or have not been planted before the pesticide is applied, or, if planted, whether or not they have emerged at the time of the pesticide application.

**Aqueous concentrate:** A concentrated solution of the active ingredient in water with or without the addition of adjuvants. This solution may be diluted, normally with water, to the concentration recommended for application.

**Atomisation:** The breaking up of a liquid into very small droplets.

**Avicide:** A chemical that kills birds.

**Bacteria:** A large group of microscopic one-celled or filamentous organisms. Some bacteria are parasites of plants or animals but many are beneficial and of importance in soil, where they break down organic matter into plant nutrients.

**Blight:** Blight in New Zealand means the specific diseases early and late blight — caused by two fungi that attack potatoes and tomatoes.

**Bout width:** A term commonly used with reference to pellet application. The bout width is the distance between the successive runs of a machine, which will achieve a satisfactory spread.

**Carcinogen:** A substance that induces cancer.

**Carrier:** 1. An inert material used to dilute, for convenient application, a concentrated formulation to a usable or desirable strength. The carrier may be a liquid such as water or diesel oil, or a solid such as dust or sand.  
2. (In disease) — Something that carries or transmits a disease without necessarily being affected by the disease.

**Colloidal powder:** An extremely fine powder of an active ingredient alone, or associated with surface active agents or diluents, forming a colloidal or virtually non-settling suspension on addition to water.

**Colloidal suspension:** A colloidal dispersion of extremely fine solid particles in a non-solvent fluid.

**Compatible:** Substances are called compatible if they may be mixed together without adversely affecting their useful properties.

**Concentrate:** The concentrate, as used in agriculture, is the undiluted proprietary formulation.

**Concentrate spraying:** See low volume application.

**Contact insecticide:** A type of insecticide which kills when it comes into direct contact with the insect.

**Crop defoliant:** A chemical applied to a crop to induce or cause the plant to lose its leaves.

**Crop desiccant:** A chemical which destroys tissue and allows quick drying of leaves.

**Deflocculating agents:** Substances which delay or hinder the sedimentation or agglomeration of finely divided particles in suspensions.

**Dermal:** Of the skin (generally human or animal).

**Detergent:** A cleansing agent for removing dirt, grease, etc.

**Diluent:** A material used to dilute another.

**Dispersible grain:** A formulation which contains granules that readily form a suspension when mixed with water.

**Dispersible powder (water):** Equivalent to a wettable powder.

**Drift:** A term applied to the movement through the air of fumes or small particles of liquids or dusts from the site of application. Drift of hormone weedkillers onto susceptible crops may cause considerable damage. There are three types of drift:

- *Drift of fumes:* This may arise from the use of volatile esters of hormone weedkillers where the ester evaporates or volatilises from the sprayed plant surfaces after application.
- *Drift of spray:* This occurs when liquids are atomised (i.e. broken into very small particles) to form a mist. The particles of liquid are so small and light that they move through the air, sometimes for considerable distances, before settling.
- *Drift of dusts:* Small particles of solids, i.e. dusts, may drift.

**Dust:** A powder of finely divided active ingredient, alone or in an intimate and uniform mixture with a finely divided inert diluent.

**Emetic:** A substance that causes vomiting.

**Emulsifiable concentrate:** A concentrated solution of an active ingredient in oil or other solvent which, on mixture with water, forms an emulsion.

**Emulsifiers:** Surface active agents used to facilitate or increase the dispersion of one liquid in another when one is not miscible in the other.

**Emulsion:** Mixture of one liquid suspended as minute globules in another.

**Eradicant:**

- *General:* A material which will eradicate a pest or the causal agent of a disease from a crop or the environment and not merely act as a preventive or protectant.
- *Eradicant fungicide:* A fungicide which can eliminate a fungus from on or within plant tissue after infection has occurred.

**Ester:** The name applied to the type of chemical (salts or organic acids and alcohols) which is formed when acids such as the hormone weedkiller acids are made to react with alcohols.

**Flammable:** A material which may be ignited by sparks, flames or the application of heat.

**Formulation:** A preparation of an active ingredient in a form suitable for a particular use.

*Classification of Formulations (N.Z. Agricultural Chemicals Board):*

Solids	Powders	(a) Water soluble	(WSP)
		(b) Water insoluble	
		Dusts	(D)
		Wettable powders	(WP)
		Colloidal powders	(CP)
	Pellets	(a) Dispersible pellets	(P)
		(unstable in moisture)	
		(b) Non-dispersible pellets	
		(stable in moisture)	
	Dispersible Grains		(DG)
Liquids	Aqueous (water) concentrates		(AC)
	Non-aqueous concentrates		(NAC)
	Emulsifiable concentrates		(EC)
	Inverted emulsifiable concentrates		(In EC)
	Suspensions		(Sn)
	Colloidal suspensions		(CSn)
Gases	Gel		(GL)
	Fumigants		(Fum)
		Smokes	(Sk)
		Aerosols	(A)

**Fumigant:** A substance which functions or disperses as a gas and as such, can destroy pests and diseases, e.g. methyl bromide.

**Fungi:** Simple plants which, like bacteria, require organic matter but not light for growth. "Fungi" is the plural form, "fungus" is singular, and "fungous" is the adjective.

**Fungicide:** A chemical used to kill fungi.

**Fungistat:** A chemical which inhibits the development of fungi.

**Gel:** A colloidal solution that has set to a jelly.

**Granulation:** The process of producing a granule, e.g. granular superphosphate.

**Granule:** A solid formulation of particle size larger than that of dusts in which the active ingredient is either homogeneously mixed with the diluent or coated on an inert core.

**Herbicide:** A chemical which kills higher plants, e.g. hormone weedkiller, a non-selective weedkiller, etc.

**High volume:** Describes a rate of application of spray which will completely wet the foliage of treated plants and beyond which any increase in application rate would cause run-off. The form of application is also known as "dilute application".



**Hormone weedkiller:** A weedkiller which upsets the internal mechanism of the growth and development of a plant and may cause its death. The symptoms of a plant treated or contaminated by a hormone weedkiller are some forms of twisting or abnormal growth. The term "hormone weedkiller" has been used loosely, but is mainly confined to MCPA, MCPB, mecoprop (MCP), 2,4-D, 2,4-DB, dichlorprop (2,4-DP), 2,4,5-T, fenoprop (2,4,5-TP), 4-CPA, dicamba, 2,3,6-TBA, picloram and benazolin.

**Incompatibility:** The inability of two or more chemicals or their formulations to be mixed together without altering the physical characteristics or efficiency of any chemical in the mixture.

**Incorporate:** The incorporation of a chemical with the soil means the very thorough mixing of that chemical, often herbicides or nematicides, with the soil.

**Inflammable:** A term with the same meaning as "flammable", the latter being the preferred term.

**Insect growth regulators:** Substances which modify the growth patterns of insects, e.g. juvenile hormones which prevent the insect from developing further than the juvenile stage.

**Insecticide:** A chemical which kills insects. Commonly but incorrectly used to refer to a chemical, which not only kills insects but also kills mites and ticks. Insecticides may exert their effect by one or more of the following actions: (a) contact, (b) ingestion, (c) fumigation.

**Integrated control:** Control of pests by the integration of known control measures.

**Inverted emulsifiable concentrate:** A concentrated solution of an active ingredient in oil or other solvent, forming, with water, a water-in-oil emulsion.

**Inverted emulsion:** An emulsion of finely divided droplets of water in oil. These emulsions do not flow easily and form large droplets when forced through a nozzle. Salad mayonnaise is an example of an invert emulsion.

**LD<sub>50</sub>:** The quantity of a given chemical, generally measured in milligrams/kilogram of body weight, necessary to kill 50 percent of a group of test organisms. The species, their sex, the method of administration, and other factors must be considered when determining an LD<sub>50</sub> (see also Toxicity).

**Low volatile:** A chemical which does not vaporise very easily, e.g. diesel oil, paraffin oil.

**Low volume application:** Application of a pesticide in such a way that foliage, etc., is covered by discrete droplets which do not run together. The term "concentrate spraying" is often used for this form of application.

**Maximum residue limit (MRL):** The maximum level of pesticide residue in food permitted by law and formerly expressed in parts per million (ppm) but now quoted as milligrams per kilogram (mg/kg).

**Medium volume application:** A spray which is used at the rate of about 200–600 litres per hectare, according to the amount of foliage to be covered, and is halfway between low volume application and high-volume application.

**Micrometre:** One millionth of a metre or 1/1000 of a millimetre. The term "micron" has been used but "micrometre" is now favoured.

**Micronised:** Reduced to a particle size which is more easily measured in micrometres. Refers to finely ground solids.

**Miscible:** Refers to liquids which mix freely without separating out into layers.

**Miticide:** A chemical which kills mites (see Acaricide).

**Mutagen:** A substance that produces a sudden change in the genetic make up of chromosomes.

**Nematicide:** A chemical used to control nematodes (eelworms). Spelt "nematocide" in USA.

**Non-aqueous concentrate:** A solution of an active ingredient in oil or non-aqueous solvents, used as such or diluted with non-aqueous solvents to form a true solution.

**Non-selective:** A term used for substances which show practically no discrimination and have a wide spectrum of action, e.g. bromacil is a non-selective weedkiller.

**Non-volatile:** A description particularly applied to hormone weedkillers, to denote that the product does not give off volatile fumes. This term is scientifically inaccurate, as all chemicals have some measure of volatility, though often it is so low as to be negligible. The correct term is "low-volatile".

**Oil based:** Dissolved or formulated in an oil or similar petroleum fraction which is not soluble in water.

**Ovicide:** A chemical which kills the eggs of mites or insects.

**Parasite:** An organism which lives in or on another (called the host) from which it obtains its food.

**Necrosis:** Death of parts of an organism (usually used in relation to plants). Those parts that are dead are said to "necrotic".

**Paste:** A thick, concentrated suspension.

**Pellet:** A mixture of an active ingredient and inert carrier with a particle size greater than dusts.

**Persistent and non-persistent:** See Residual.

**Pesticide:** Any substance used for preventing or controlling any pests, and including plant growth regulators, defoliants and desiccants but not any fertiliser or animal remedy.

**Pests:** Normally pests are those animals (insects, mites, birds, etc.) which damage crop plants. The word now is sometimes used more generally and may refer to any organisms (including weeds and disease organisms such as fungi) which may harm crops and depress yields.

**Pheromones:** These are substances which affect the behaviour of organisms (usually insects). Examples are sex attractants and food attractants.

**Phytotoxic:** Toxic or injurious to plants.

**Post-emergence:** The application of a spray to the crop after the crop seedling or plant shoots have emerged through the ground.

**Pre-emergence:** The application of a spray to a crop before the crop seedling or plant shoots have emerged through the ground.

**Prill:** A solid formulation of a particle size larger than that of dust in which there is normally an inert core surrounded by active ingredient.

**Residual:** A term applied to a weedkiller, insecticide, or fungicide, referring to the persistent effectiveness of its residue. Some pesticides may have a long residual action if they are effective for some time after application, whereas others may be of short residual action.

**Residue:** The quantity of an agricultural chemical (in the past expressed in parts per million (ppm) but now mg/kg is favoured) either in or on plants or animals at the time of testing.

**Resistant:** A term used to describe insects, fungi, bacteria, weeds or any living organism able to survive the disruption of life processes brought about by pesticides, diseases, etc., which would normally cause the death of other similar organisms, or in some cases, other individuals of the same species.

**Run-off:** The excess of spray solution which runs off a surface after it has been thoroughly wetted.

**Russet:** Skin blemish on apples and pears, varying from superficial discolouring to very brown rough skin.

**Seed dressing:** A chemical applied to seed to prevent fungal infection or insect attack. Seed dressings may be called "single purpose" if used to protect against fungi only; but seed dressings are often "dual purpose", in which case they protect against both fungi and insects.

**Selective:** A weedkiller or pesticide which kills certain organisms only (i.e. weeds and insect pests) and leaves others (i.e. crops and beneficial insects) unharmed.

**Semi-concentrate spray:** A spray used at the rate of some 200 to 600 litres/hectare according to foliage cover (see Medium-volume application).

**Sequestering agent:** A substance which will form soluble complex molecules with salts present in hard waters. Examples are citric acid and ethylenediamine tetraacetic acid (EDTA).

**Slurry:** A "semi-liquid" mixture of a water-insoluble powder and water (i.e. a concentrated suspension).

**Smoke:** A preparation consisting of an active ingredient and a heat-producing material which on burning disperses the active ingredient as vapour or particulate matter.

**Soil disinfection:** The treatment of soil either by heat (generally in the form of steam) or chemicals to kill harmful insects, fungi, and bacteria. The phrase "soil sterilisation" often used in this context is incorrect.

**Soil fumigant:** An agricultural chemical applied to soil either by injection, intimate mixing, or under an impermeable sheet, which fumigates the soil.

**Solvent:** The liquid, often paraffin-type oils, in which an active chemical (herbicide, insecticide, etc.) is dissolved when formulated.

**Spray mist:** The mist of fine droplets which is produced when a liquid is atomised.

**Spreader:** See Surface active agent.

**Stable:**

- When used to describe formulations of pesticides the term implies that there are negligible chemical or physical changes under normal conditions of storage.
- When used to describe active ingredients of pesticides the term implies that under certain stated conditions, such as in sunlight or when incorporated in the soil, the chemical breaks down relatively slowly.
- When used of emulsions or suspensions of powders the term implies that the rate of settling is slow.

**Sticker:** A substance added to formulations or spray mixes which assists the adhesion of dry residues to treated surfaces.

**Surface active agents:** Substances added to active ingredients to influence their wetting and spreading properties. These are also known as "surfactants".

- *Wetting agents:* Assist in the suspension, mixing and stability of sprays. They also help in the deposition of spray droplets onto plant surfaces, i.e. "wet" the leaves.
- *Spreading agents:* Enable the droplets, once they have contacted and "wet" the leaves, to spread across the plant surface. Their action is through a reduction in the surface tension of the spray droplet.

Many wetting agents, included in the formulated product to help suspend the material in the spray diluent, also act as spreading agents.

**Surfactant:** See Surface active agents.

**Suspension:** A dispersion of insoluble solid particles throughout a liquid. As with emulsions, the smaller the particle size of the material the more stable the suspension.

**Swath:** The strip of a surface, appearing in the wake of a machine, which has been covered or treated by the machine, e.g. the swath of a combine harvester.

**Systemic:** When used agriculturally refers to the property of some chemicals which are readily absorbed and are transported (or translocated in the plant sap).

**Teratogen:** A substance that interferes with the embryological development of an organism causing abnormalities.

**Therapeutant:** A word used in the past in New Zealand for any chemical which is used to combat plant pests and diseases. However, this term is not favoured now as it could be interpreted as providing a cure for a plant disease once the disease has established itself in a plant.

**Tolerance:** Equivalent to maximum residue limit and resistance.

**Total vegetation control:** Weed control which involves killing all plant cover.

**Toxic:** Poisonous or harmful.

**Toxicity:** This word is used in a very imprecise fashion to describe in general terms how poisonous a material is expected to be in relation to other compounds. The unit of measurement is generally in terms of milligrams of chemical per kilogram of body weight of the organism under test. The type of toxicity may be described as:

- *Dermal:* If it applies to application of the chemical to the skin.
- *Oral:* If the chemical is ingested.
- *Acute:* If the toxicity results from the ingestion or application of a single dose.
- *Chronic:* If toxicity results from the intake or absorption of repeated small doses or continuous exposure.

**Translocate:** See Systemic.

**Ultra low-volume (spraying):** An extremely low rate of application of an agricultural chemical.

**Vector:** Generally used for insects which carry or transmit certain virus diseases, but see also Carrier.

**Volatile:** Giving off fumes readily, e.g. petrol, perfume, etc.

**Waiting period:** The period which should elapse between the last application of an agricultural chemical and the harvest of the treated crop for human consumption.

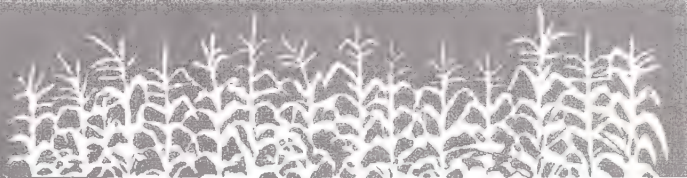
**Water soluble powder:** A powder of an active ingredient alone or mixed with biologically inert diluents, which is readily soluble in water.

**Weedicide:** Any chemical which will kill weeds.

**Weedkiller:** Any chemical which will kill weeds.

**Weight/Volume (w/v):** A method of expressing the weight of a substance in a given volume of a liquid mixture, e.g. 10 percent w/v = 100 g/litre.





**Abscission:** The dropping of leaves, flowers, or fruits following the formation of an abscission layer.

**Abscission layer:** A zone of specialised cells extending across the base of a leaf, fruit, or flower. Towards the end of the growing season the pectins in the cell walls of this layer are dissolved by enzymes and the cells separate.

**Accessory fruit:** Fruit containing tissues developed from the flower parts in addition to the ovary, e.g. cucumber, pumpkin, banana.

**Achene:** A small dry, one seeded fruit that does not open at maturity, e.g. sunflower.

**Adenosine Triphosphate (ATP):** The major source of chemical energy for the numerous metabolic processes which occur in plants.

**Aerobic:** In the presence of oxygen.

**Agar:** A gelatinous substance obtained from red algae.

**Aggregate fruit:** Fruit developed from a flower having a number of pistils, all of which ripen together, e.g. raspberry, blackberry.

**Alkaloids:** Organic compounds produced by plants. These substances constitute the active ingredients of many drugs, e.g. nicotine, morphine, quinine, caffeine.

**Amino Acids:** Nitrogen-containing organic acids, the building blocks from which protein molecules are derived.

**Ammonification:** The reduction of nitrogen containing material to ammonia by micro organisms such as bacteria.

**Anaerobic:** In the absence of oxygen.

**Angiosperm:** A flowering plant with seeds enclosed in a developed ovary.

**Annual:** A plant in which the entire life cycle is completed in a single growing season.

**Annual Ring:** A layer of xylem and phloem produced during one season of growth.

**Anther:** The upper portion of a stamen, containing the pollen grains.

**Anthesis:** The time of full expansion of the flower, or time when fertilisation occurs.

**Anthocyanins:** Natural pigments in cell-sap, usually of shades of red or blue.

**Antibiotics:** Substances of biological origin that interfere with the metabolism of micro organisms.

**Apical dominance:** Influence exerted by a terminal bud in suppressing the growth of lateral buds.

**Apical meristem:** A group of cells at the tip of root or shoot that by division produce the tissues of the root or shoot.

**Ascomycete:** A fungus whose spores are borne in an ascus (a sacklike structure), e.g. *Penicillium*, yeast.

**Asexual:** Any reproductive process that does not involve the union of gametes.

**Autotrophic:** An organism able to manufacture all of its own food, e.g. most green plants and some bacteria.

**Auxin:** A naturally occurring growth hormone, present in minute quantities in plants.

**Axillary:** Term applied to buds or branches occurring in the axis of a leaf.

**Bacillus:** Rod-shaped bacteria.

**Bacteriophage:** A virus that attacks bacteria.

**Bark:** All tissue outside the vascular cambium. In older trees it may be divided into dead outer bark and living inner bark (usually consisting of phloem).

**Basidiomycete:** A fungus whose spores are born on basidia (club-like structures), e.g. common field mushroom.

**Berry:** A simple fleshy fruit such as a grape or tomato.

**Biennial:** A plant that normally requires two growing seasons to complete the life cycle. Only vegetative growth occurs in the first year; flowering and fruiting occur in the second year.

**Bisexual:** A flower having both functional stamens and pistil.

**Bract:** A modified, usually reduced, leaflike structure, that bears a flower or branch of an inflorescence in its axis.

**Brassica:** A plant genus that includes many common vegetables, e.g. cabbage, cauliflowers, swedes, chou-moellier.

**Bryophyte:** Any liverwort or moss.

**Bud:** Embryonic shoot.

**Button:** An immature mushroom before the expansion of the cap.

**Callus:** Wound tissue.

**Calyx:** The first of the series of floral parts, composed of sepals. The calyx is usually green and leaflike, but may be coloured like the petals.

**Cambium:** The actively growing layer of cells between the xylem and the phloem.

**Capsule:** A dry fruit that develops from a compound pistil and opens in various ways allowing the seeds to escape, e.g. poppy, legumes, Brazil nut.

**Carbohydrates:** Organic compounds produced by the plant which contain carbon, hydrogen, and oxygen, e.g. cellulose, sucrose, starch.

**Carotenoids:** Yellow or orange pigments found in the plastids of plants.

**Carpel:** A leaflike organ bearing ovules along the margins, e.g. pea pod.

**Catkin:** A spikelike inflorescence of unisexual flowers. The male catkin may be borne on one tree, the female on another or both on the same tree, e.g. willow, birch, poplar.

**Cell:** The structural unit composing the body of the plant; a unit of protoplasm surrounded by a cell wall.

**Cellulose:** A carbohydrate, the chief component of the cell wall.

**Chlorenchlyma:** Cells which contain chloroplasts.

**Chlorophyll:** Green pigment of plants, essential for the process of photosynthesis.

**Chloroplast:** A specialized body (a plastid) in the cytoplasm that contains chlorophyll.

**Chlorosis:** Loss of chlorophyll.

**Climax:** A stable community of a succession, it is self-perpetuating and in equilibrium with the physical environment.

**Clone:** Individual organisms which have a common origin and that have been produced only by vegetative means such as grafting and cutting rather than from seed.

**Coccus:** Spherical bacteria.

**Coleoptile:** A sheath which covers the shoot of grass seedlings. Often interpreted as the first leaf.

**Collenchyma:** Supporting tissue composed of living cells with unevenly thickened walls.

**Companion-cell:** A small specialised cell associated with the sieve-tube elements of the phloem of flowering plants (angiosperms).

**Cork:** A secondary tissue, non-living at maturity with walls fitted with a waxy or fatty material resistant to water and air.

**Corm:** A short, thickened, underground stem, upright in position, in which starch is accumulated, e.g. gladiolus, taro.

**Corolla:** Collective term for petals.

**Cortex:** Primary tissues of stem or root extending from the phloem to the epidermis. Composed mainly of parenchyma cells.

**Cotyledons:** The leaves of the embryo, one or more in number.

**Cross-pollination:** The transfer of pollen from the anther of one plant to the stigma of a flower of another plant.

**Cuticle:** A waxy layer covering the epidermis.

**Deciduous:** Broad-leaved trees or shrubs that drop their leaves at the end of each growing season, as contrasted with plants that retain their leaves for more than one year.

**Dehiscence:** The opening of an anther or fruit, permitting the escape of reproductive bodies contained within.

**Denitrification:** The process by which nitrogen is released from the soil by the action of certain bacteria.

**Dicotyledon:** A flowering plant with two seed leaves or cotyledons.

**Dioecious:** Bearing male and female flowers on different individuals of the same plant species.

**Disk flowers:** The tubular flowers that compose the central part of a head of flowers, e.g. daisy family.

**Drupe:** A simple fleshy fruit in which the inner part of the ovary wall develops into a hard, stony or woody endocarp, e.g. peach.

**Endocarp:** The inner woody or stony part of the wall of a fruit as in a drupe or pome.

**Endodermis:** A layer of specialised cells one cell thick, frequently absent in stems but usually present in young roots, which separate the pericycle from the cortex.

**Epidermis:** The outermost layer of cells of the leaf, young stems, and roots.

**Epiphyte:** A plant that grows upon another plant but is not parasitic upon it.

**Etiolation:** Term given to tall spindly plants which have been grown in the dark or in light of very low intensity.

**Exocarp:** Skin of fruits.

**Fats:** Produced by plants largely as a storage product. Fats in liquid state are called oils.

**Fermentation:** A respiratory process in which glucose is converted into alcohol, or lactic acid in the absence of oxygen.

**Fibrous roots:** A root system in which the roots are finely divided.

**Follicle:** A dry fruit in which the fruit wall as it ripens becomes leathery, papery, or woody. Derived from a simple pistil and opens along one side only, e.g. legume.

**Fruit:** A ripened ovary containing the seeds.

**Geotropism:** The effect of gravity upon the direction of growth.

**Germination:** Resumption of growth of an embryo or spore.

**Gibberellins:** A naturally occurring plant hormone.

**Glucose:** Grape sugar or dextrose.

**Glumes:** Bracts, two in number: Found at the base of a flower stalk of grasses.

**Grain:** The fruit of grasses. A small dry, one seeded fruit that does not open at maturity.

**Guttation:** The term given to the appearance of clear drops of water on the tips and margins of leaves, particularly under humid conditions.

**Gymnosperm:** A plant with seeds not enclosed in an ovary, e.g. pines.

**Haulm:** The stems and stalks of peas, beans, potatoes, etc.

**Haustorium:** 1. In parasitic vascular plants, a specialised outgrowth from the stem or root which penetrates the living tissues of the host and absorbs food.

2. A specialised fungus hyphae that invades a host cell.

**Herb:** A non woody plant whose aerial portion is relatively short lived.

**Herbaceous:** Plants which are soft stemmed. May be perennials or annuals.

**Humus:** A complex mixture of incompletely decomposed organic materials in the soil.

**Hydrophyte:** A plant that grows wholly or partly submerged in water.

**Hydroponics:** A technique whereby plants are grown with their roots emersed in water to which all essential fertiliser elements are added.

**Hydrotropism:** The effect of moisture on the direction of growth.

**Hyphae:** Threadlike structures that compose the main body of a fungus.

**Hypocotyl:** The portion of a seedling between the cotyledons and the radicle (primary root).

**Indehiscent:** Remaining closed at maturity.

**Indolacetic Acid (IAA):** An important plant hormone.

**Inflorescence:** A cluster of flowers.

**Internode:** The region of a stem between two nodes.

**Kinins:** Plant hormones associated with cell division.

**Latex:** A milky fluid found in certain plants such as dandelion, rubber trees.

**Legume:** A member of the pea or bean family. The value of these plants is due to the bacteria that live in swellings (nodules) on the roots and fix atmospheric nitrogen.

**Lenticels:** Small corky areas on the surface of stems and roots which allow the interchange of oxygen and carbon dioxide between internal tissues and the atmosphere.

**Leucoplast:** Centre of starch formation.

**Liana:** A large woody, climbing plant.

**Lichen:** An organism comprising an algae and a fungi.

**Meristem:** Regions in which cell division takes place.

**Mesocarp:** The middle layer (usually fleshy) of the fruit wall of a drupe or other fruit.

**Metabolism:** The sum total of the chemical processes which go on in the plant.

**Mitochondria:** The powerhouse of the cell. A minute organelle present in cells in which respiration takes place.



**Monocotyledon:** A flowering plant with one seed leaf or cotyledon, e.g. grasses.

**Monoecious:** Male and female flowers borne on the same plant.

**Multiple fruit:** A fruit composed of a number of closely associated fruits derived from different flowers, these fruits forming one body at maturity, e.g. pineapple.

**Mycelium:** Collective term applied to hyphae of fungi.

**Mycology:** The study of fungi.

**Nitrification:** The conversion of ammoniacal nitrogen to nitrate nitrogen by two specific groups of bacteria the *Nitrosomonas* and the *Nitrobacter*: the process takes place under aerobic conditions.

**Nitrogen-fixing bacteria:** Bacteria living in the soil or in the roots of legumes (nodules), that convert atmospheric nitrogen into nitrogen compounds in their own bodies.

**Nodes:** The region of the stem where one or more leaves are or have been attached. Buds are commonly borne at the node.

**Nodules:** Swellings on the roots of legumes which are inhabited by nitrogen-fixing bacteria.

**Nucleus:** A specialised body within the protoplasm of a cell that contains the chromosomes.

**Nut:** A one seeded fruit in which the fruit wall is hard or woody at maturity.

**Ovary:** The swollen basal portion of a pistil. The organ containing the ovules or seeds.

**Palea:** Uppermost of two bracts enclosing the flower of grasses.

**Panicle:** An open branching inflorescence, e.g. oats.

**Parenchyma:** An unspecialised cell or tissue. The cells are usually thin-walled, and retain the capacity for cell division at maturity.

**Parthenocarp:** The production of fruits in the absence of pollination and fertilisation. Parthenocarpic fruits are usually seedless, e.g. citrus fruits, seedless grapes, and in cultivated varieties of pineapple and banana.

**Pathogen:** Any organism capable of causing disease.

**Pectin:** A complex organic compound found in the cell walls. The basis of fruit jellies.

**Pedice:** The stem of an individual flower.

**Peduncle:** The stem of an inflorescence.

**Perennial:** A plant living from year to year, not dying after flowering.

**Pericarp:** The mature ripened ovary wall.

**Petiole:** The stalk of the leaf.

**Phage:** A virus that attacks and destroys bacteria.

**Phloem:** The principal food-conducting tissue of the vascular plant, basically composed of sieve elements and parenchyma.

**Photoperiodism:** The response of plants to the relative lengths of day and night.

**Photosynthesis:** The process whereby plants convert carbon dioxide and water into sugar in the presence of chlorophyll, using light energy and releasing oxygen to the atmosphere.

**Phototropism:** The effect of light on the direction of growth.

**Physiology:** The study of metabolic activities and processes of living organisms.

**Pistil:** The central organ of the flower composed of the stigma, style and ovary.

**Pith:** The tissue occupying the centre of the stem within the vascular cylinder.

**Plumule:** The bud of the embryo. At germination the plumule gives rise to division of the shoot above the cotyledon.

**Pollination:** The transfer of pollen from the anther to the stigma of the same or another flower.

**Pome:** An accessory fruit with a leathery endocarp, e.g. apple.

**Prop roots:** Roots that arise from the stem above soil level, e.g. maize.

**Protein:** Complex organic compounds constructed from amino acids and composed of carbon, hydrogen, oxygen, nitrogen and sulphur.

**Raceme:** An inflorescence in which the individual flowers are borne on stems (pedicels) along a central axis, e.g. blackberry.

**Radicle:** The basal end of the embryo which grows into the primary root.

**Respiration:** The process whereby sugars are broken down to carbon dioxide and water with the release of energy.

**Rhizome:** A horizontal underground stem. Distinguished from a root by the presence of nodes and internodes and sometimes buds. Often thickened and containing accumulated food. Violets, iris, orchids.

**Rosette:** A circlet of leaves spreading from a short stem and pressed close to the ground, e.g. plantains, dandelion.

**Saprophyte:** An organism that obtains its food from non-living organic matter.

**Scion:** A portion of shoot used for grafting.

**Sepal:** The first of the floral organs, beginning at the base of a flower, are the sepals which collectively form the calyx.

**Shoot:** Collective term applied to stem and leaves.

**Sieve tube:** A vertical series of food-conducting cells of the phloem of flowering plants. Characterised by sieve-like openings on the end walls and on the side walls.

**Spermatophyte:** A seed plant.

**Spike:** An elongated inflorescence resembling a raceme except that the flowers have no pedicles (or stalks), e.g. common plantain, a widely distributed weed.

**Stamen:** The organ of the flower producing the pollen. Composed of anther and filament.

**Staminate flower:** A flower containing stamens but no functional pistil (a male flower).

**Starch:** A carbohydrate — the most common storage product in plants.

**Stigma:** The part of the flower which receives the pollen grains.

**Stipule:** An appendage on either side of the basal part of a leaf.

**Stock:** The part of the stem that receives the scion in grafting.

**Stolon:** A slender, elongated subterranean stem. It forms buds which may develop into a tuber, e.g. potato.

**Stomata:** An opening or pore between two specialised epidermal cells called the guard cells.

**Style:** The part of the flower that connects the ovary and stigma.

**Succulent:** A plant with fleshy water storing stems or leaves, e.g. cacti.

**Tiller:** A sucker or side-shoot from the base of a plant.

**Translocation:** Movement of food, water or mineral elements from one part of a plant to another.

**Transpiration:** Loss of water from plant tissues, chiefly through the stomata.

**Trifoliate:** Having three small leaflets, e.g. clover leaf.

**Tuber:** A much enlarged portion of a subterranean stolon with buds on the sides and tips, e.g. potato.

**Umbel:** A kind of flower cluster (inflorescence) in which the flower stalks (pedicles) arise from the same point, like the ribs of an umbrella, e.g. parsley.

**Vascular tissue:** Tissue composed of xylem and phloem, the conducting tissues of the plant.

**Vegetable:** Any edible part of a plant not formed from a matured ovary or from an ovary and associated parts.

**Vegetable reproduction:** Reproduction by means other than seeds.

**Wood:** The xylem, the woody portion of the vascular tissue.

**Xanthophylls:** Yellow to orange pigments of plants.

**Xerophyte:** A plant adapted to survive under conditions of a limited water supply.

**Xylem:** The woody portion of the vascular tissue. The vessels used to conduct water and minerals to the leaves.

